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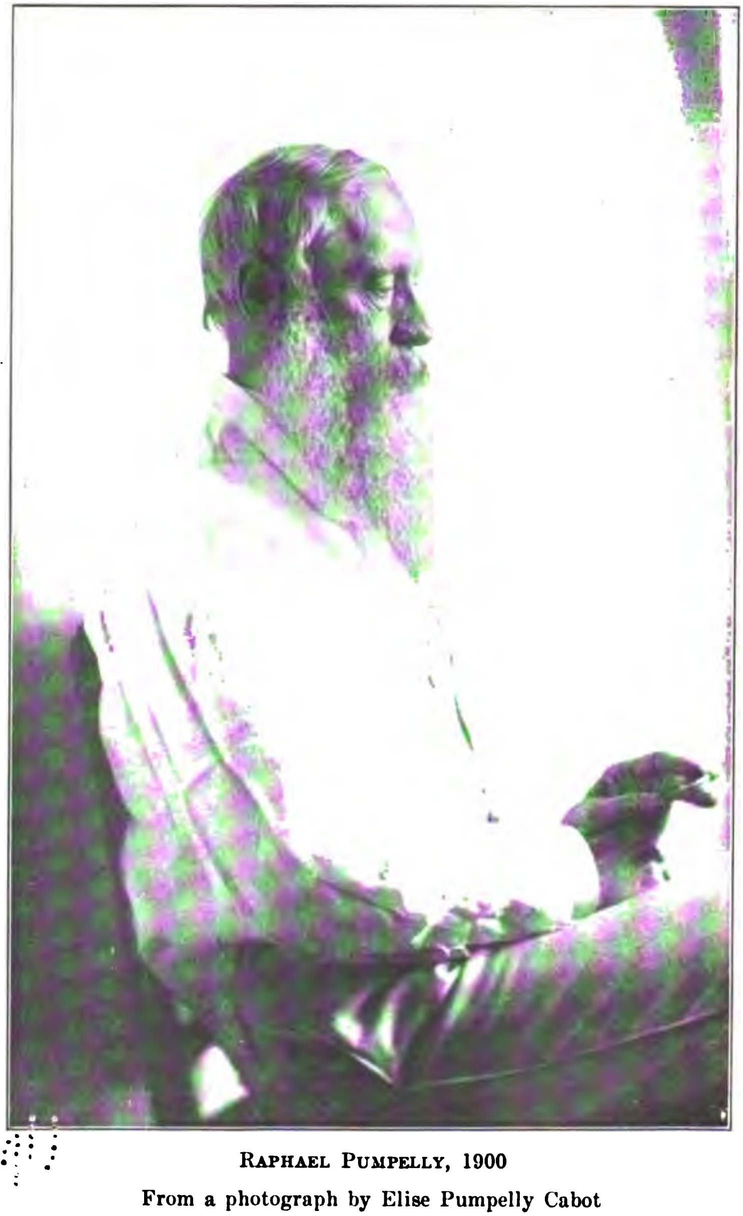

RAPHAEL PUMPELLY, 1900
From a photograph by Elise Pumpelly Cabot

TO THE MEMORY OF
MY WIFE

TO THE MEMORY OF
MY WIFE

327835

MY REMINISCENCES

BY

RAPHAEL PUMPELLY

WITH ILLUSTRATIONS AND MAPS

IN TWO VOLUMES
VOL. I

NEW YORK
HENRY HOLT AND COMPANY
1918

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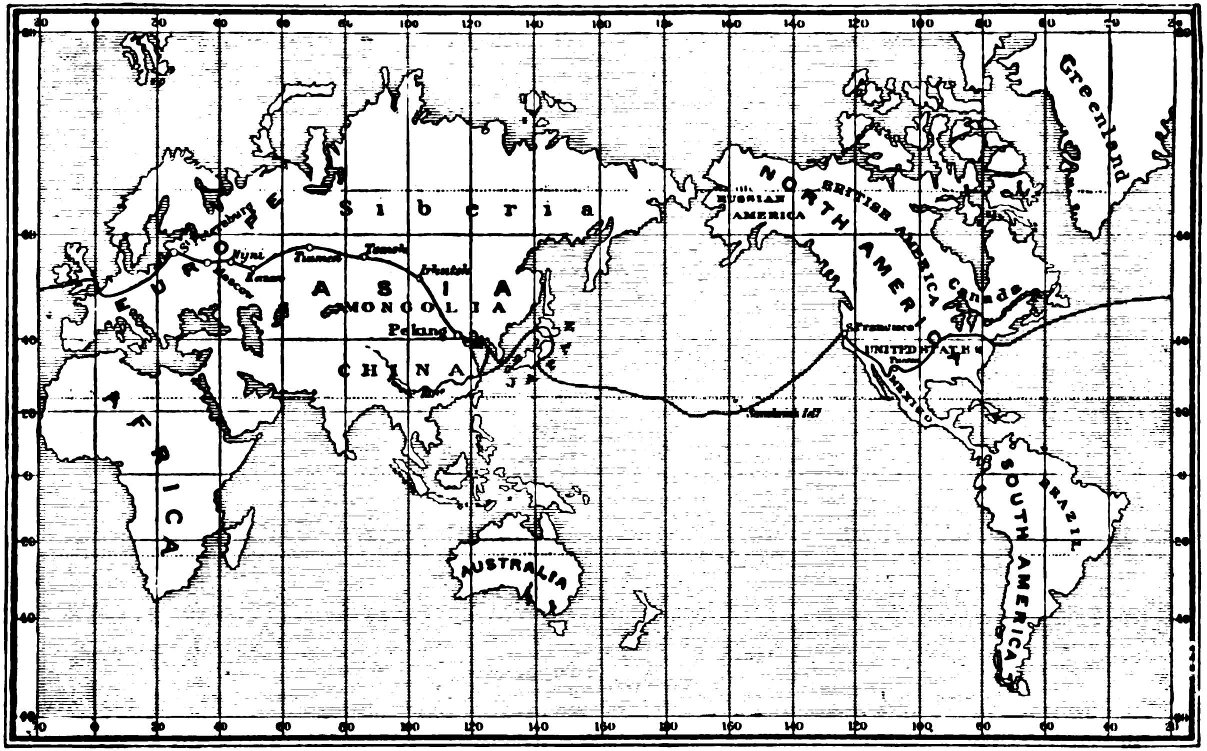
RAPHAEL PUMPELLY

VOL. I



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MERCATOR CHART, SHOWING AUTHOR'S ROUTE AROUND THE WORLD, 1860-1865.
From *Across America and Asia.*

CHAPTER I

EARLY ENVIRONMENT

Fortunately the stork chose well my destination; for instead of imprisoning me in the confinement of a city he sought for me the free air of the country. This was on the 8th of September, 1837, in Owego, N. Y. The valley of the Susquehanna has, through hundreds of millenniums, been cut a thousand feet deep into the great table-land that stretches from the Appalachian Mountains to the Mississippi River. In this valley, now narrow, now broad, the river winds its way in graceful curves, now widened with slow and eddying currents, now narrowed into roaring rapids. From its source near Cooperstown to its mouth there is a continuous chain of beautiful landscapes. In its more gentle moods it is wide, its cultivated borders sloping gently upward to the highland; in its grander aspects it lies between lofty walls covered with grand forests.

In my youth this valley was full of Indian legendary interest and of tales of the transition period. The tragic episode of the "Wyoming Valley," famous for its beauty, was still fresh in the memory of some of our family connections who occupied that valley soon after the massacre.

My paternal grandfather, after having served, from boyhood up, through all the French and Indian colonial wars, from the siege of Louisburg to the end on the Heights of Abraham, and then through the war of the Revolution, moved with his family to what is now Danby near Ithaca, N. Y., after his oldest son, James, had spied out the land. There were four brothers among the children. They were surveyors, and my exploring tendencies are thus easily accounted for. My uncles took part in defining the boundary between New York and Pennsylvania as well as surveying the several large patents derived from the Indians and from the Connecticut Grant.

In time my father and his brother as well as the husband of my mother's sister owned large tracts of land, then forest-covered and abounding in great white pine. They built lumbering camps and mills, made roads for hauling logs to the mills and timber to the river, where it was built into rafts and "arks" to be floated to the coast.

To maintain these industries in a new country they had to build stores, and stock them with goods "poled" up the long river route from Baltimore, or later brought from New York or Albany, via the new Erie Canal and Cayuga Lake to Ithaca, and thence by a primitive railroad to Owego.

By the time I was old enough to notice such things, this condition was already waning, but there were still some mills near the river, and the yearly building of rafts and arks was active; and at the right stage of the flood there was always a continuous procession of these long objects going slowly by, each with a little house in the middle, for the crew; and a man at each end steering with an oar, called a "sweep," thirty or forty feet long, swinging on a post rising from the middle of each end. The raft was made chiefly from sawed or hewed lumber. The ark was a great flat-bottomed boat sixty or seventy feet long, and about a quarter as wide with straight parallel sides perhaps three feet high, and pointed. In the earlier years the ark carried, besides lumber, chiefly large quantities of wheat, but in my time great quantities of "plaster" for use on the down river lands. When the ark arrived at its destination, it was taken to pieces and sold as lumber. There was a mill for grinding the plaster rock near Owego, which was often the cause of my absences from school, and for some memorable consequences thereof.

All this was changed by the building of the Erie railway, and with this change and with the contemporary exhaustion of the pine in the forest the ark became a thing of the past. All that remained to show the former abundance of pine were the great stumps that had been dragged from the clearings to form the only kind of fences then used. Laid on edge, everywhere bordering the roads and bounding the fields, their enormous roots presented weird, fantastic, impenetrable barriers.

At the time of my birth the village of Owego was already about forty-five years old. It lay along the shore of the river. The inhabitants were, nearly all of them, original settlers who had come from Connecticut, some of them from the prominent colonial families of that state. They brought with them the religious and educational traditions of New England. They had had their education in the schools and in the farm life of their youth. Few of them had been through college, but nearly all had the essentials of the education of the time, and some knowledge of the English classics, and they read and digested the few solid books they possessed. But there soon settled among them men of excellent education, mostly lawyers and physicians. Among these was N. P. Willis who was a classmate of my cousin—Yale 1826—and who brought his English bride to settle on my cousin's land "Glen Mary," where he lived and wrote during several years.

Taken all in all, they formed an excellent type of a New England community, somewhat modified by the transference to new conditions of time and place.

In the early part of the nineteenth century this community established the Owego Academy, an excellent school preparatory for college and taught by able teachers, though I must add from experience that their rods and rulers seemed unnecessarily hard and stinging. Out of this Academy have come a number of men who have shown ability in various directions as lawyers or justices of the State Supreme Court or as college professors, and one member of the President's Cabinet. Of the two Rockefeller brothers, part of whose youth was passed near Owego, William was a pupil in the Academy after my time.

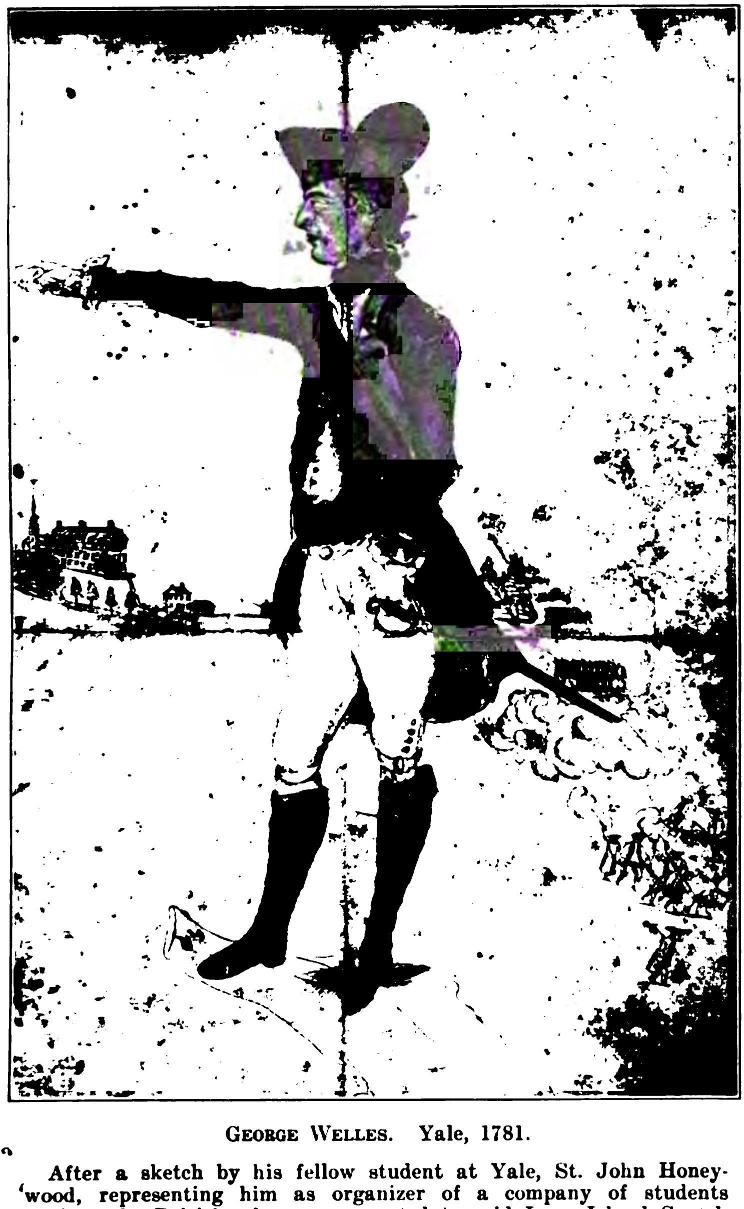
My father was blonde, standing erect six feet two. He was a man of noble features and fine presence, of equable and kindly temperament, and with broad sympathies. In selling lands for farms he never foreclosed a mortgage nor ejected a tenant, but helped his debtors when pressed by others. He had a comfortable fortune, for that time, even after diminishing his means in making up the deficit caused by an unauthorized loan made to a railroad promoter by the cashier of the bank of which he was president. He gave freely to church and missions and public purposes. In religion he was a firm believer in the inspiration of the Bible, and although a Presbyterian, he had no bigotry of sect but was a thoroughly consistent Christian.

One who had known him through life wrote to me:

> "As my father's intimate friend and counselor, when I was in my youth—as tried and true in my more intimate acquaintance with him in after years, as noble and just, his personal proportions always seeming to me a type of his inward nobleness, I have learned to esteem and love him increasingly as the years have passed."

He received his education in the pioneer home of his father, from his mother and from the little school that was started later. This he supplemented by reading throughout life, chiefly in history and theology.

My mother was of medium stature, erect and energetic, and affectionate, and artistic in temperament. Carrying in herself, from mother and father, through intermarriages, double and



George Welles. Yale, 1781.

After a sketch by his fellow student at Yale, St. John Honeywood, representing him as organizer of a company of students against the British who were expected to raid Long Island Sound.

treble strains of inheritance from most of the ruling families of colonial Connecticut, she was quietly proud of her descent. In the matter of manners and bearing she required much from us, but not to the extent that had been demanded by her parents in whose presence their children did not sit until told to do so. She was sent to Mr. Jourdan's school in Philadelphia. Later she had some instruction in painting from a neighbor—an émigré from the French revolution—and some hints from Catlin who visited her father at Tioga Point. The portrait painter Le Clear told me that my mother gave him his first instruction in painting. I have still a good portrait made by her of her mother, and one of a child—her stepdaughter—painted when she was twenty-one.

After marriage ill health and the cares of an increasing family absorbed her time. Still her imaginative nature found expression in poetic writings, some of which were privately printed; but nearly all the copies were burned in a fire at the publisher's. Her name as a poetess is in Alibone's Dictionary.

During several years of my boyhood my mother was almost out of my life, owing to her ill health and a long siege of nervous prostration. I then learned to step lightly, speak low, and close doors noiselessly, traits that were so deeply impressed on me that they unconsciously control me still.

My mother had a good knowledge of general history and of English literature, as well as some of French and German, which languages she learned to speak fairly well after the age of fifty. She had a good appreciation of really good humor, and could be witty herself. When in his old age my father found expenses rapidly increasing, through foreign travel and my education abroad, he protested that it would end in the "poor-house." Once my mother, who drove out every day, stopped in front of that institution. "Mary, what on earth are you stopping here for?" he asked.

"Why! William, if we've got to live here, we might as well begin to plant trees and a garden, and do what is needed to make the place comfortable!"

A life-long friend of my mother wrote to me:

> "I like to tell you how immeasurably superior, in her great endowment of talent, I always felt her to be to all the other refined, cultivated women I have known."

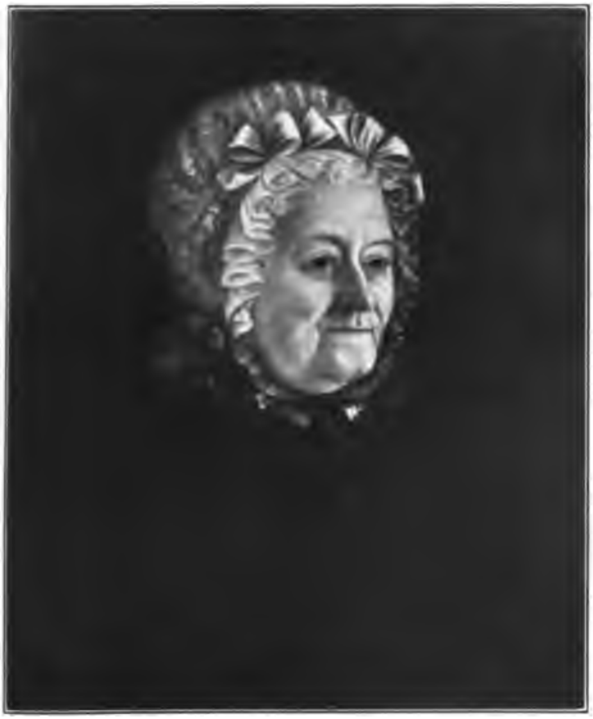
I had a brother John, eleven years older than I, and a sister Antoinette, five. There were also two sisters who died in infancy. There was also a half-sister by my father's first marriage, who may have been twenty years my senior as she was married before my birth.

It is an interesting item in heredity that both this half-sister and some of the daughters of my father's brother Charles were all noted for their beauty. They were all descended, through the same grandmother, from a notedly beautiful woman, a Stella Hinchman of New Jersey, who married an Avery and came to live in Owego. And this trait continued through my half-sister's daughter to her grandchildren.

My earliest memory goes back to seeing my maternal grandmother on her bed as I crossed her room to look out of the window. She died when I was two years and two months old.

My next remembrance, about a year later, is of lying face down on the great, hewed timbers of the frame of a destroyed bridge that floated moored to the river shore. I was watching the fish flashing through clear water over the pebbly bottom of the river; and what drove the incident deep into my memory was the plunge into the cold water, and the successful grabbing of a rough mortice hole by my little fingers, when another small urchin had tumbled me in.

Later I remember President Harrison taking me on his knee and delighting me by saying that when I grew up I



Prudence Talcott Welles

From a painting by her daughter, Mary H. Welles Pumpelly.

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should have a sword and kill another Tecumseh. I was three years old.

At this period another series of events made an indelible impression. My mother had painted a banner for the electoral campaign of 1840, and took me with her, on the primitive railroad to Ithaca. The rails of the track were flat, thin bars of iron, the ends of which, instead of being cut square across, were cut at an angle leaving a sharp point; these were known as "snakeheads." The spikes had a pleasant way of loosening and letting the ends of the rails gradually curve upwards. Track-walkers had not been invented in those days, so an end would, in time, rise high enough to let a wheel pass under; then the sharp-pointed snakehead would run up through the car to the roof, and woe to the unlucky one seated over the wheel. Our trip was uneventful, but my believing ears heard with wonder the tales of our fellow passengers who delighted in accounts of narrow escapes, and of persons pinned to the roof. While we waited in the parlor of a hotel in Ithaca, I passed the time in pulling an elaborate bell rope —much to the disgust of the service. Fifty years later I had occasion to stop overnight in a hotel in Ithaca. When I opened my eyes in the morning and found I was in a very large room something made me look for the bell rope, and when I saw a wire running along the top of the wall and ending near the door, though there was no longer a rope, I recalled the long forgotten visit, and knew I was in the old hotel parlor. Inquiry proved that I was right.

It was not more than a year or two later that an impression was made not only on my memory but banefully on my body. I was run over by a two-horse bob-sleigh carrying four men at full speed. The near horse knocked me face down, and I can now hear the noise, like falling timbers, as the broad, iron shoes of the runners slid over me. Fortunately they went diagonally on a line from one hip to the shoulder of the opposite side. This combined with snow, soft bones, and good luck saved me. I was picked up fully conscious, and remember seeing the driver whipping the horses and escaping from an angry crowd that would have tried to lynch him. Seeing that some one was carrying me homeward, I cried: "I want to go to my aunt's," which was whither I was bound. I said this made a baneful impression on my body; it gave me a weak back that all through my youth handicapped me in fighting: the boys came to know that a strong grip around my waist would finish me, and my over-consciousness of this affected my courage and undoubtedly tended toward developing a peaceful attitude.

When I was about four years old there came another experience that put me at a disadvantage with other boys. I was standing on a timber raft that was moored to the shore in an eddy of deep water. My brother, thinking to teach me to swim, suddenly threw me into the river, where instead of swimming I sank. Fortunately the current carried me through to the other side of the big raft before I came up. I sank twice before they could rescue me.

This was my second escape from drowning, and the impression caused by the shock was an indelible fear of water beyond my depth. As I grew older I learned to swim in shallow water, but the instant the question of depth arose, I would sink like a stone. Only after I was forty did I risk myself beyond my depth, and that was under a challenge.

As an offset, not liking to be thought cowardly, I made a point of challenging boys to follow me in dangerous "stunts." When they laughed at me because I couldn't skate, I would run over thin or rotten ice where they dared not follow; or if it was in swimming I would shoot a dam on a plank; or dare them follow me up a dangerous cliff supposed to be inhabited by rattlesnakes. My most daring challenge was to navigate, as I did, the river in flood time on a cake of ice;

it found no takers, and twice nearly finished me. When the ice on the river was broken up by the great spring flood, large cakes ten or fifteen feet square would tarry along the shore of an eddy. The stunt was to shove the cake loose and float with it downstream, steering it near the shore with a stout pole. Because it would break into smaller and smaller pieces, one had to try to keep always on the largest piece, and be ready to jump to the bank when the danger point came. The real danger lay in the chance of losing control, and being whirled out into the rapid current. This happened to me once. I saw a half-mile ahead of me, and beyond the bridge, a ferry boat worked by a rope and pulley running on a cable stretched across the river. (The upper works of the bridge had been carried away.) I had been seen, and I hoped the pilot would try to intercept me, and that my cake of ice would hold together. But I saw also that great cakes ahead of mine were breaking up against the piers of the bridge which lay between me and the boat. The water was very deep, and I could use my pole only in pushing against such large pieces as I could reach. As it was, my cake just rubbed against the edge of the ice that was crushing against the pier, and this touch sent my cake through, whirling round and round, and heading for the boat. The pilot managed so that another man caught me from the ice as it rushed by.

In such ways I "saved my face," not without much anxiety however on my own part. As I look upon life as a continuous course of learning, I look back on this bravado as a most valuable part of my education; it taught quickness of perception, the instant coöperation in emergencies of brain, eyes, hands, and feet, and that balance between caution and action that forms a basis of judgment.

Until I was about eight years old, there were long hours of learning to read under my mother and nurse; the picture in the spelling book of a little boy being led up the steps to the "Temple of Fame," or was it of "Learning?"—a round structure of columns supporting a dome—is still vividly before me, as well as the hopeless difference between the half-dozen steps in the picture, and the endless vista of steps to climb in learning to spell.

Then too the long, long hours in which my dear mother tried hopelessly to make me learn to write a decent script. When I did very badly, the punishment was having to grind her colors on a marble slab. I learned, however, to spell very well, which is more than I can do now, but the handwriting has never got beyond the primitive stage.

I am sorry to have to record that I was quite wrongly supposed to be a "good boy." Goodness became linked in my mind with two long services every Sunday, and Sunday School and later by the Westminster catechism, and Wednesday prayer meeting. Sunday was strictly observed; no play, no reading except of the Bible or tracts. Oh, those tracts! One on dancing had a picture of a couple waltzing gaily towards the edge of an abyss; while a little table with a wine-glass on it, and a serpent underneath, standing impossibly on his tail, pictured the punishment awaiting them. Then there was "the sad fate of the boy who went on the water on Sunday." It had a picture tragically graphic and simple—just a boy's hat floating on a pond.

That hat has haunted me through life; it has bobbed up every time I have been on the water on Sunday. Boating on that day was a markedly heinous sin, and my frequent youthful commissions of that sin, and the painful consequences that followed discovery, gave that hat a superstitious significance.

I once met, in the West, an old lady who had lived near us in my youth. She told me that when I was four years old she heard my father say to me: "I'm afraid my little boy doesn't love Sunday."

"Oh, yes, I do, papa," I answered.

"I'm so glad you do, now tell me why you love it."

"Because it goes away Monday morning."

About this time a missionary named Cannon had been asked to stay to dinner. He sat next to me, and offered to cut and chew my steak for me saying he always chewed his little boy's meat for him. I left the table in disgust. When he was sitting in the library after dinner, I dragged my older sister along for protection, and reaching the open door shouted: "Cannon! Cannon! Son of a Gun! Son of a Gun!"

It was many years before I could hear of missionaries and missionary efforts without associating them with this type of man and manners; indeed it was only when, in the far East, I came to know men like Wells Williams and Josiah Cox, and the medical missionary Lockhardt, and some of the fathers at the Jesuit missions, that I found reason to discriminate.

In the years between five and ten, a child's attitude of mind towards important subjects is easily influenced by trivial incidents. Prayer meeting was my special torture. The congregation was Presbyterian, and since the prayers were extemporaneous, and many of the suppliants possessed a limited vocabulary, their prayers were apt to degenerate into "set" phrases. I came to know in advance with each devout person, just where these would come in, and with just what tone peculiar to the man they would be spoken, especially whether nasally or not. I watched for these phrases with a disagreeable fascination. "Eternal bliss" occurred so surely and so repeatedly that it even aroused unconventional ideas about heaven. Strangely enough my repugnance did not extend in my mind to the men personally: for I knew them as kindly and good people.

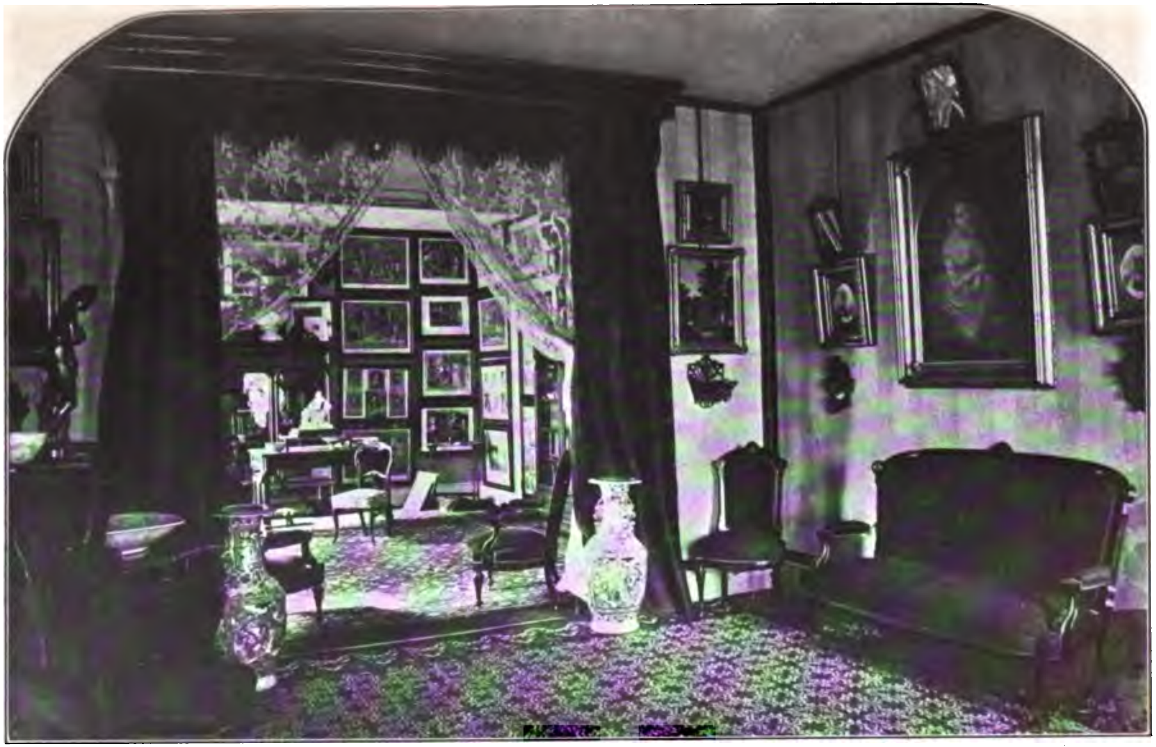
The awful restrictions of Sunday, together with many other things of the kind, though themselves trivial, produced a rebellious attitude towards things spiritual which undoubtedly had its influence on my development.

But all the impressions and dislikes I have mentioned did not associate themselves with the religious observances in our home life. And while I received bountiful whippings for Sunday escapades, I considered these escapades worth the price I had to pay for them.

There was however one discordant note. There was one man in the village who, though he came regularly to the Sunday services in our church, was looked upon as one who did not believe in God, because he did not believe that Christ was the Son of God. I heard that he was a man of excellent education, an able lawyer, and of irreproachable character. Yet he was socially avoided. Even at my age this seemed strange. I wondered how a man could be a disbeliever in God, and not be a very bad man all through. I also wanted to ask him questions, especially if he avoided prayer meetings for the same reasons that made me hate them, and whether he didn't pray, because he didn't believe there was a God.

We had a pair of Morgan horses which I soon learned to ride, bareback at first, then with a saddle. There was another boy who rode, and we strove to see who would take the greatest risks in riding down the steep, loose talus of a cliff, or in other dangerous places. Later, when the Erie railroad was finished through our valley, we would try which of us would make the closest shave in crossing in front of the fast train. We had narrow escapes, and engineers and firemen always greeted us with hard pieces of fuel. But it all gave me a good seat.

On one of my father's farms, about a mile from the village, there was a field that had been badly overflowed by a torrent that left many stones. My father, thinking it would be well for me to do some useful work with my hands, made me a



Sitting-room at Owego

very attractive offer if I would make piles of the stones ready for carting away. I forthwith sublet the job to a number of my playmates, and, after having invented a plan of work, retained for myself the position of superintendent. This was a lesson in organizing.

About this time I made the acquaintance of a young Irishman who was studying with the local priest. I had already delighted in the usual fairy stories, but this man's weird tales, from the great store of Irish legends, left in my mind an indelible fascination for the mysterious in the world of the past; a fascination that, ever after, grew and extended to the mysteries of Nature and of ancient history, and that in much later life led me to explore for remotely early civilizations in Asia.

At least in one way, Sunday had benefited me: for I was thrown back on the Bible for my only reading. We had one in many volumes with copious commentaries, all of which I read through three times, though there was of course much that I did not understand.

We had also some books on Mythology, in which I browsed —when my dear mother was absent—for they were forbidden fruit. But my greatest delight was in Rollin's Ancient History.

When I was about eight years old, my mother read aloud to us Hugh Miller's "Old Red Sandstone." It interested me, and I began to look for fossils among the rocks of the cliffs of our valley, where I had seen things that aroused my curiosity. They were there in abundance, and they were soon too numerous in our house for general comfort. This too had an influence on my later life.

I made journeys with my mother to visit her relatives on the Susquehanna River in Pennsylvania, sometimes driving in a great yellow gig swung high on leather springs, sometimes in a more modern carriage drawn by two horses. Since our journeys were usually made in autumn the picture is still before me of this continuous expanse of rich, mingled colors clothing the sides of the valley high above our road. And, deep below, the river lay a mirrored winding ribbon of silver, or roared in foaming rapids.

We usually went for a few days' visit to Tioga Point at the meeting of the Chemung and Susquehanna Rivers, near the village of Athens. Here the two rivers after almost joining spread apart to come together a mile or more farther south, thus enclosing a large area of level land. This had belonged to my mother's family from the latter part of the previous century. I believe they had bought it from the Indians; the site of the home of "Queen Esther" is still pointed out.

In the center of the farm stood a large stone house and all the accompanying buildings of a well-arranged estate. It was built by my mother's brother, who was now dead, and was occupied by his widow and sons. Like my aunt at Owego, this lady ruled over extensive farming and gardening industries. I found here several cousins and we had horses to ride, fishes to catch, and wild places to explore.

While we were at breakfast one morning, my mother told me a good dog story of her youth. On successive days, in a certain field, several lambs had been found dead, and as the favorite sheep-dog was supposed to have done the killing, my grandfather took him to the spot, and after rubbing his nose on the dead lamb, gave him a severe whipping. Then the dog disappeared for several days. My mother said: "After two or three days, we were all at breakfast in this room, when the dog bounded in, barking loudly, and pulled at my father's coat. Mother said: 'George, he wants you to go out,' so we all followed to the outer door, and from there we saw a colt in a field holding a lamb in his teeth and shaking it. I followed my father, the dog had run ahead, and when we reached the spot the lamb was dead. The dog looked at my father, then went slowly into the nearby hedge, lay down and died."

There was a small group of boys, seven or eight years old, who were inclined to follow my lead. We had absorbed Indian stories, and at first these gave the staging for our pastimes, but when we came into possession of "The Pirates Own Book" the Indian performances seemed tame, and we were launched on a downward career. We found caves where we met and consumed the booty, which at first consisted of the product of raids on the home pantries; we even learned to make the necessary keys. Before long our feasts included fruit and green corn from the fields of unrelated owners. Then we appropriated cider and wine. In time we borrowed boats, and later actually took permanent possession of one which we succeeded in hiding. This not only widened our range of operations, but also gave them the final stamp of piracy. We had the conventional quarrels in division of spoils, and I still bear the scar of a stab in my leg.

This outlawry had continued for a long time apparently unsuspected from the outside. Our frequent absences from school, as well as growing reckless conduct during school hours, resulted in more frequent whippings, and, doubtless, judging from the rush of blood to his face, much disturbance of the nervous and digestive condition of the headmaster; I have now a profound sympathy for him: for he was otherwise an excellent teacher.

But the end came suddenly and effectually. One day on coming to school, I met the headmaster on the stairs. He stopped me and pulled from my pocket a small bottle of port wine. Being caught, and angered at the loss, and knowing that an extra hard ordeal was sure to come, I determined to get full value, and made a bonfire of papers under my desk. Memory feels still the sting of the penalty.

The climax followed quickly. I was found out in something really bad, something that under the law, and in the case of a poor boy, would have meant the juvenile court, had one existed then.

Most fortunately my dear mother was equal to the occasion. She took me to her room, and there talked to me quietly, dispassionately, logically. After getting a full confession of the whole downward career, from beginning to end, she developed clearly to me the whole tendency of my course, in its relation to crime and disgrace, and to the dishonor of the untainted family name. Then, for the first time, I realized: before the only thing of importance had been not to be found out. Now I received a clear and startling conception both of the ethical and personal bearing of my conduct. When my mother saw how thoroughly I understood, how deeply the impression was stamped, and my repentance, having got my acknowledgment that I deserved severe punishment, she gave me a sound thrashing, which I bore throughout with the feeling that it was doing me good.

Once in England I was told that when Wellington returned triumphant from the continent, a gentleman took his young son to a window to see the hero—then he thrashed him to fix the scene in his memory.

All the whippings I had endured through previous years had only hardened me and aroused anger; only this one did good. It was also the last one I ever had.

My mother's talk with me sank deep into my soul; it made me morbidly sensitive for a long time, but the impression remained through life.

Among the general effects of this experience, not the least has been a charitable feeling for children who have started wrong; and a belief justified by experience, in the effect of appeal at the right moment, in the right way, to the best instincts of the normal child.

CHAPTER II

SCHOOL DAYS

It was decided to send me away to a boarding school. My sister had married and as her husband's brother—a boy of about my age—was at Mr. Harris's school at White Plains, N. Y., that was to be my destination.

The Erie railroad had already been built as far as Owego and beyond, under the presidency of my sister's father-in-law, Mr. Benjamin Loder; and over this, an all-day journey through the outer world brought my mother and me to New York, and to new wonders for the country boy.

One little incident of our stay of a few days in the city at the then best hotel—on the corner of Chambers Street and Broadway—is worth telling. My mother took me with her to do some shopping, and stopped to buy some lace at a little shop which had recently been opened by A. T. Stewart, and was, I believe, the beginning of his career—I think he had no clerks. After selecting what she wanted, my mother, putting her hand into her pocket, found only a mass of small pieces of paper. She had started away with a fifty dollar bill loose in her pocket, and during the long walk had been absent-mindedly tearing it to pieces. Handing back the parcel, she turned to leave, but Mr. Stewart insisted most politely that she should sit down, and he would make it all right. Then gathering the fragments together, he spent nearly an hour in matching and pasting them on paper, and handed the change to my mother. From that time to his death, and later during the existence of the house under his name, practically all of the shopping of our family was done at Stewart's.

When we reached White Plains, my mother left a very homesick boy and a large hamper of cakes and marmalades.

It was a small school—about thirty pupils—and somewhat exclusive, the boys coming largely from old city families. There were extensive grounds, including a large grove. Being on high ground, it looked over a large extent of surrounding country.

A few days after my arrival, as I stood watching a group of the boys wandering in the distance out of bounds, one of the teachers coming up to me said: "Pumpelly, who are those boys?" Thinking that I was in duty bound to tell, I began. Then stopping me short he gave me a lesson I never forgot, on the meanness of "telling tales."

The boys had a strict code of honor of their own; a lie or any kind of meanness brought punishment, but the cherries of the region were fair prey. I remember that every year one farmer, when the cherries were ripening, invited the boys and pointed out two or three trees of an exceptionally good kind which he reserved wholly for us, asking us to respect the others. In return the boys largely respected the offered trees, and preyed on those of the less generous men.

A few days before Thanksgiving, a flock of turkeys strayed into the far side of the forest, and were killed by eight or nine boys. A few hours later we saw, from our desks, the farmer owner coming from the grove, holding a dead gobbler. Then Mr. Harris was called out, and soon returned. He was a man we all liked—and feared. As he walked slowly to his desk, he told the story he had heard from the farmer, and his own impressions. When he called the roll, each culprit promptly confessed. Payment came from their allowances; the farmer got the money—and the turkeys. If any boy had hesitated to confess, he would have risked punishment by his comrades, for contravention of the elastic code. A tale-teller after being missed for several hours, was found buried with only his head out of ground.

It was distinctly a good school, and a lot of healthy, manly boys. Whipping simply did not exist; punishment for neglected lessons or infraction of discipline, consisted almost only in so many lines or pages of Latin after school hours (in the studies emphasis was laid on Latin), or in confinement to the bedroom on bread and milk. This last was generally welcome to me: for the cooks and maids quietly brought me the best of the daily dishes.

We had plenty of play hours and good food. After supper we read what we liked, which was largely in travels and fiction. At a given signal, we started for bed. And as we slept two in a room we undressed hurriedly on the way, saying our prayers at the same time, because the last one in bed had to put out the light.

The years at this school were happy ones, and they were in all respects the healthiest in my school life. We had our fights, in one of which my opponent won by hurling a broken tin cup which cut through an eyelid leaving it attached at both ends, and having to be stitched into place.

I liked my studies, but, although the annual report to my father gave me high marks, I was behind the best of the pupils.

One of the assistant teachers sometimes went with us on excursions or to bathe in the Bronx. He knew something of Geology, and, although there were no fossiliferous rocks, I learned to recognize a number of minerals and rocks which were composed of them, which increased an interest already begun at home.

I find from some letters of the time that I was bent on going to sea, and wanted above all to get into the expedition

Commodore Perry was to make to Japan. My letters showed such determination that my brother—eleven years my elder—was sent to dissuade me. When that failed to move me I was told that if I would wait till I should be ready for college, my brother and I should go to Australia; and to this I agreed. I remembered the widespread excitement caused by the discovery of gold in California, and with what intense interest I watched all the preparations making by a group of young men who were among the first to start after the news reached the East.

Before coming to White Plains my surroundings and life had been those of the country. It had been free among the hills, creeks, and gorges, and shooting, or boating and fishing with line or spear. I saw farm life and the animal and lumbering industries. Both my parents and my father's brothers and my maternal aunt and her husband owned many farms and forests, and the mills and stores necessary to carrying on these industries.

The home of my maternal aunt was in itself a center of domestic industries. Most of the necessaries of life were prepared there by a force of women and men under the rule of the mistress of the house. Great quantities of different meats were corned, cured, smoked. There was spinning, some weaving and the making of candles and soap, and the drying for winter use of many fruits and vegetables from a great garden, as well as extensive preserving. There were also the dairy, the cows, horses, sheep, and fowls.

And yet withal this woman found time to read, and know what was going on in the world outside. It was a tradition from New England colonial times. In my home life and among our near acquaintance, I heard only good English and good grammar.

The change had been great in leaving home and the free life of the past with its lessons gained in the country from boyish curiosity and adventure and its punishments. At Mr. Harris's I came suddenly into an atmosphere of well-ordered discipline and study, where my companions were all from the city with its traditions and the manners of good bringing-up, and with a code of moral action, which though somewhat elastic as we have seen, was strict in manly essentials. And its influence was for good.

At last the time had come for me to prepare for college. All my mother's forbears of the eighteenth century, and my brother as well as my cousins, on both sides, had graduated, most of them, at Yale. So I was sent to Mr. William Russell's "Collegiate and Commercial Institute" at New Haven. Soon after, he was made adjutant general of the state, and the school became known as General Russell's, and later very widely known from the officers it contributed to the Civil War.

The school was large and in the center of the city. The pupils, generally older than I, were gathered from the Northern and Southern states and from Latin America. The number of pupils was beyond the capacity of the sleeping accommodations, and a house near-by had been rented for a dormitory for the overflow, and there I lived at first. Later I boarded in a private family.

Besides the ordinary curriculum of studies preparing for college, we had military drill. I think this occurred every day; and it was very thorough. It certainly was an efficient factor in my education, and one that should exist, during several years, in the school life of every boy.

I have before me a report of my conduct and studies during the first half of the year 1853-54, the year before I was to be examined for admission to Yale College.

I don't know what were the subjects needed during the next year and a half, to finish for admission to college. I know that I read Xenophon's Anabasis, and that my friend and fellow student George Dunham and I got together mornings at four o'clock to read in Latin.

Very much to my surprise I find that my report carries the highest mark, (4) in each of my courses excepting "declamation" and "punctuality" which had (3) each. I have always supposed that I was one of the more backward scholars, and believe so still. I know that the mark for "general behavior" would have been a vanishing number had it been based on knowledge on the part of Mr. Russell, for later in that year I was invited by him to an unasked-for private interview. The talk was wholly one-sided, and not only somewhat excited but quite unpleasant. He had decided to send me home. Fortunately, the talk lasted so long after stating the decision of expulsion, and I took it all so quietly, that it merged into advice, and he ended with saying that in consideration for the feelings of my family he would give me another trial.

I never knew how he found out that, with some of the other boys, I often passed from Saturday to Monday cruising on the Sound in a sailboat, and some other things. There was nothing really bad, except that sometimes we tried to imitate some of the Yale students in drinking at a saloon of their choice. So I think (3) was an undeserved honor.

The two fraternities of Yale vied with each other in bespeaking Mr. Russell's scholars for membership. They were very friendly to us in a rather patronizing way, and among other things invited us to the ceremony of "The Burial of Euclid."

I look back with pleasant memory on those years. There were some adventures sufficiently thrilling on land and water. Once we were out all night without compass or chart, drifting in a dense fog on the Sound. Another time, as Dunham and I stood looking up at West Rock which then ended in a real cliff of basaltic columns, Dunham said:

"That's a place that I bet even you can't climb." It did seem impossible but I didn't like the way Dunham put it, and I took the bet with a bottle of champagne for stake.

The next Saturday we were there soon after the noon dinner. I looked long to find the best way up, but the longer I looked, the more there seemed not to be any way. There did seem to be a bare possibility of reaching a niche not far below the top, and I decided to try for the niche, and then trust to luck. The approach to the cliff was up a talus of broken columns. The cliff itself was of columnar basalt; the columns, writing from memory, were four to six inches in diameter, cross-jointed with cracks, and much broken. The only foothold was on the tops of broken columns, and the piece stepped on was often loose and ready to fall, and many did fall as I left them. The climbing was very dangerous, and only practicable by never advancing without having a sure hold with at least one foot and one hand. Slow and careful work brought me, however, to the niche, though at almost every step I really regretted having accepted the challenge.

After a rest, an anxious survey of the possibilities showed the top to be overhanging, and no way of reaching it by climbing. I looked far down over the way I had climbed, and I remembered that it was possible to go up where one could not get down. The prospect was decidedly unpleasant. The afternoon was well advanced, and a crowd of quarry men were wildly shouting and gesticulating far below, which did not encourage me.

There was nothing to do but to try to descend. Once started I should surely reach the bottom either sound or in connected pieces. So I threw my shoes down; I might want them again. The descent was much slower and more difficult and anxious than the climb. It required very careful feeling for foothold, first on one rock, then on another as the first one gave way and tumbled down the face of the cliff. The bottom was reached however before dark. I think Dunham was more wrought upon by anxiety than I was by that and fatigue. He wept, and the crowd scolded and praised me.

Then Dunham and I found a quiet place, and after difficulty owing to inexperience, in opening the bottle, made way with the champagne.

It was a foolhardy adventure, but it was a valuable incident in education which, several years later, carried me through some difficult mountain episodes in Corsica; and I could not have got down safely without my earlier experiences in climbing as a small boy.

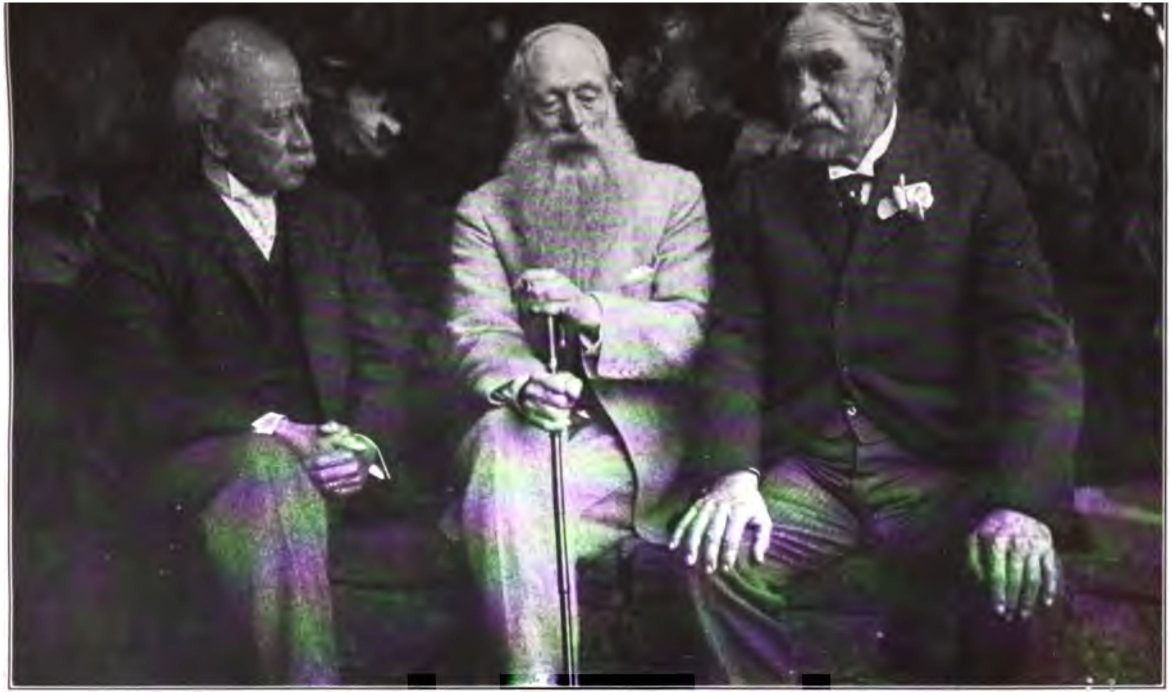
During one of our early morning readings, in the spring of 1854, Dunham said:

"Pompey"—that was the name all my Pumpelly cousins and my brother bore through school and college, and which descended to me—"Pompey, I've made up my mind not to go to Yale, but to finish my studies in Germany."

Dunham and I were the closest of friends, I loved him as a brother, and my first thought was one of grief at the parting.

This casual announcement decided my future; I too would not try for Yale—if I too might go to Germany to study.

This was my last year in New Haven. Of all the pupils at Mr. Russell's, I have met in after life only two or three. Many of them served in the Civil War. I remember them as a fine lot of promising boys. I never saw Dunham again. He did go to Yale. Several years later, in Paris, picking up a small piece of an American newspaper I read that he was drowned in practising for a Yale-Harvard boat race. He, with one of my cousins, was in the Yale crew when the boat capsized, and Dunham, not being able to swim, was drowned, notwithstanding all efforts to save him. Fifteen years after leaving New Haven I met another fellow pupil—Henry Holt



OLD SCHOOLMATES
ETHAN ALLEN HITCHCOCK, RAPHAEL PUMPELLY, AND HENRY HOLT
From a photograph by Elise Pumpelly Cabot

—who has since, for nearly fifty years, been a very close friend. On reading these sheets, he tells me to supplement what I said some pages back about military drill with the statement that he and I, both now nearer eighty than seventy, still stand as straight as anybody.

Ethan Allen Hitchcock was another of the boys, older than I, and I believe the best scholar in the school. When we met again for the first time after nearly sixty years, he was in the Cabinet as Secretary of the Interior, and my neighbor at Dublin, N. H., where my daughter got some good pictures of him and Holt and me together. He died as a result of honestly and efficiently administering the most corrupt department of our government. His brother Henry was in my brother's class in Yale.

CHAPTER III

I GO TO EUROPE

On my way home, on leaving New Haven, I met my mother at my sister's house, which her husband had bought, just above 32nd Street on Fifth Avenue.

Here, choosing the proper moment, I put out a feeler in the matter of studying in Germany instead of going to Yale. My mother's silence left me in doubt, but the next morning she kissed me and said: "We will go, let me arrange it." I knew my mother, and that it was settled; my father would consent; and when we reached home, he accepted the plan.

The only members of our immediate family connection who had traveled in Europe were one of my mother's nephews, who had visited related families in England and Ireland, and my father's brother Mr. Harmon Pumpelly, who had made the "grand tour" in the thirties or early forties.

On the 4th of June, we boarded the German half-clipper ship *Donau,* Captain Heydtmann, bound for Hamburg. As we bade good-by to my dear father, who had come to see us off, and watched him from the receding ship, I felt for the first time, what it must mean to his deeply affectionate nature to have us leave him alone, long separated from us by time and distance. I do not know that he had at any time raised any objection to the plan.

After two days of seasickness, the voyage was delightful. The captain was very agreeable, and so were the few passengers of whom one, Dr. J. F. Noyes, became a life-long friend. If there was any defect in the German cooking, the sea appetite made it good. The air was so refreshing that

WILLIAM PUMPELLY

MARY H. WELLES PUMPELLY

I took my blankets and a waterproof up every night and slept on the hard deck. The sailing conditions were not favorable from Sandy Hook to the Banks, nor after passing the Scilly Islands, but between these points our time was eight and a half days, and we entered the Elbe June twentieth, fifteen and a half days from New York—though it may have been counted from Sandy Hook. The same vessel had made the previous trip in fifteen days. The Hamburg-American line named its first steamer after the *Donau* and Captain Heydtmann perished with it.

Our introduction to Europe was not in arriving among the distractions of a harbor, but in sailing up the river Elbe, greeted by the fragrance of newly mowed grass, wafted in the air from the broad, smiling meadows that spread back from each shore.

As soon as we reached still water, a dance was started on the deck, and then there appeared a passenger not seen before —a German lady at least seventy years old, who had not left her berth during the voyage, but now danced as lively as the others.

We arrived at Hamburg without having formed any definite plans for the future, excepting that the first step should be to learn the German language. For this we went at once to Hanover, where it was supposed to be spoken with the best accent.

In order to learn the more quickly, after a few days at a hotel, we lived apart, my mother in a German family, and I in another. My quarters were on the second floor of the house of a crockery merchant who was also a painter and decorator of porcelain. His wife was a handsome and motherly woman who made me comfortable. I took my meals with the family. As the teacher who undertook to guide me into the language showed himself much more anxious to learn English than to make me learn German, I soon got rid of him, and decided to learn by myself. There was constant conversation going around the table, and I listened intently to try to see where the words began and ended, and to locate the few words or phrases that had already become familiar to me. Careful reading of a German book of fairy tales with interlinear translation into English helped me much, as well as an irregular struggle with the grammar. But I soon found that I learned best by talking, using such words as I knew, mixed with English or with signs. Once started, the sentences I heard became gradually more and more understandable through, what in reading we call, their context. Thence onward through all my years in Germany, I learned the language by ear.

Very soon I noticed the frequent occurrence of words having the same sound and same meaning in German as in English, as *Hand, Handschuh,* and later more and more remote resemblances. I began to realize that this was not due to mere coincidences, but that it had a historical background. This aroused the intellectual interest that forms the fascination of comparative philology—a science of which I had never heard. The language no longer seemed a dry study, but, like the rocks of my home, of Hanover, it was a store of fossils. Of course I had learned, long before, that we were from England, whose people were in origin Germanic as well as Norman and Celtic, but this had come as a dry fact arousing no further interest.

The curiosity of a child in taking to pieces a doll or a watch to see its insides is the first groping in the direction of reasoning, and stops there; it is destructive; it denotes the observing faculty, and is the beginning of education.

The next step comes with the drawing of near inferences from observations. After this, generally as with me, long after, comes, or should come, the realization that everything has a hidden story to be interpreted, and the wish to read the story. It lies at the root of philosophy, whether we try to read the story subjectively by deduction, or objectively, —inductively—by experimentation. As with the individual, so with mankind at large. The civilizations of the East remained, and crystallized, in the deductive stage, as in China; those of the West have developed under the inductive.

When, in youth or later, this stage is consciously reached, education becomes no longer the memorization of a mass of more or less related facts and ideas, but it enters into the far wider realm of correlation and coördination, the realm of knowledge. I feel that my entrance began consciously when I began to see the relation between some German and English words.

Soon after arriving in Hanover I engaged a riding-master. I had ridden a great deal on my father's horses, and had a good seat, but the instruction in the Continental Military School of Horsemanship then received, has always since been of great use to me.

The surroundings of Hanover have a great charm for the rider—the long *Herrenhäuser Allée* under its wonderful canopy of foliage, the rolling country beyond in one direction, and the broad moors with the fragrance of freshly cut peat.

Almost daily I met the much beloved blind King escorted by his adjutant, and noted that though sightless he never failed to respond in kind to the raising of the hat by those whom he passed. Once I saw him rebuke the young Crown Prince who had neglected to do so, and send him back to acknowledge the salutation.

I had also, soon after arriving, engaged a sword master, and throughout my stay in Hanover, I practised with the foils and saber, and for some time with the *palash*. The latter is a long, heavy blade used with both hands, chiefly in heavy downward strokes. The protection for the head was a strong, rather heavy, iron basket, thickly padded inside, which deadened the effect of very heavy blows. There was a young Englishman with whom I had practised a great deal with the *palash,* giving and taking at times severe strokes on the head. One day, after failing to parry a moderate stroke, he staggered back evidently in pain. On removing the head-piece, we found that the padding had become displaced enough to leave the top of his head unprotected. He made light of it however, and I went home with him and sent for a physician, but he died that night. I never used the *palash* again. To add to the pathos of the tragedy, the boy's mother wrote that she received at the same time word of the death of her only other child in the battle of Inkerman in the Crimea.

In September, with my mother, I went to Dresden, intending to return directly from there. By this time, both of us had a fair amount of vocabulary and ability to understand conversation. Naturally the artist nature of my mother found great delight in the gallery—the first collection of good paintings she had ever seen. This and the charms of the *Grünegewolbe* collections of antiquities kept us longer than we had intended. But we went on to Prague, yet in its mediæval condition, with its still barren suburban plains, and hillocks where Huss was burned for the glory of the church; with its marvelous ancient bridge sculptured to show all the many horrid refinements of torture in hell, scenes so realistic that they might have satisfied the Calvinistic cravings of even our Jonathan Edwards. It was a valiant city of the past; its quaint houses had looked down on the successive conquering and fleeing hosts, whose martial music, and clanking of armor and of iron-shod hoofs, echoed through the narrow streets. Through the windows of its ancient palace had been cast the challenges that began the two religious conflicts—the Hussite and the Thirty Years wars. The challenges in both cases were the hurled down bodies of high dignitaries—much more earnest and dramatic than gloves.

Leaving my mother in Prague, I made a hasty trip to Vienna, to learn whether I could attend lectures at the Technological Institute. I wanted this chiefly for the language, and incidentally for the subjects; but I found that there was required a stricter entrance examination than I could pass, and was advised to try the polytechnic at Hanover, where without examination I could follow lectures. I took a night train back to rejoin my mother.

On this trip there happened something amusing that had a sequel. As I was in the habit of talking with anybody and everybody I met in traveling, while waiting on the platform of the station I fell into conversation with a man, and we both got into the same third-class compartment, where we were alone. After talking for some time, and being rather tired, I fell asleep. Awakening I found we were standing still in a station, and a guard was shouting to change cars for Prague. We were at Brunn. My head was cold, and I searched in vain for my hat: it was gone. It was a crush hat—an opera hat, for these were, rightly or wrongly, much worn then in traveling. Clearly my fellow traveler had stolen it; but I had doubtless got its worth out of him in German and information, and a handkerchief replaced it till I reached Prague. The sequel comes a year later.

We returned to Dresden, and drove to the station to go to Hanover. I found that I had only enough money for a ticket third-class to Magdeburg. We had not taken with us enough for the more extended journey; and the letter of credit had been left in Hanover. Not liking to tell my mother of the dilemma, I had tried to persuade her to stop over in Magdeburg, thinking that I could leave her there while I went on to get the letter of credit; but in spite of the discomfort of the cold third-class, she would not stop there. I was at my wit's end and desperate. During the short stop at Magdeburg, I hastened after a German Jew I had had much talk with in the car, and coming up with him in a dark passage I held out my mother's watch, and telling the trouble asked him to loan me the few thalers needed for tickets. He was at first much frightened, thinking, in the dark and with my broken German, I was about to rob him. Fortunately, before calling for help, he saw I was offering and not demanding a watch, and after examining the pledge he handed over the money, promising to return the watch if the loan should be paid within a week. So we reached Hanover. I sent the money by mail the next day, but had great difficulty in getting back the watch, and in accounting to my mother for its absence in the meantime.

CHAPTER IV

GERMANY AND FRANCE

In September I looked for quarters in Hanover for myself and Dr. Noyes, who promised to join me for a few months. The house that attracted me most from the outside had a sunny exposure. Looking at it from across the street I happened to notice a large glass *carafe* containing something like a mass of white ribbon in a window over the entrance. This window proved to be in one of the rooms of the apartment offered, but the *carafe* had disappeared. The three rooms to be let were pleasant, and I took them. The lady who offered them was the widow of a German physician, and had five attractive and well-educated daughters. One day Mrs. Bertram, my landlady, told me that one of her daughters had until recently been a long time very ill, and had only recovered after the removal of a tapeworm thirty feet long. She added that till lately it had been preserved in a *carafe* of alcohol. Thus was the quick change in the decoration of the window accounted for. Tapeworm is or was then a very common trouble in northern Germany. A professor of anatomy told me that in his lectures he could always be sure of finding its larvæ in any specimen of pike; and, that lying in the thick flesh near the backbone, it was rarely killed in cooking.

When Dr. Noyes arrived, the young ladies taught us to dance all the dances of the time, and between this diversion and card playing we had a very good time and made great progress in the language.

Later my mother took an apartment above ours, where she boarded with the mother of an army officer attached to the court. One evening the Bertrams sent for a fortune teller—an old woman. After telling me that I had before me a long voyage by sea, and still another and longer one also by sea, and journeys through dangerous lands, she added that the dangers she foresaw were from the people I should have with me, and that I should never let them go behind me. Soon after this, I went off for a few hours' shooting with my sword master. We went farther than intended, and were away till midnight, when I found my mother in a most anxious condition. The six women had recalled the fortune-teller's prophecies, and suggested doubts as to the character of the sword master, till my mother, though quite an unbeliever in the fortune telling, had become very nervous. In itself the incident is nothing, although I did later make the predicted great sea voyages, and travel in many dangerous lands. It had however a serious side, for ever afterwards, first in my travels in the mountains of Corsica, and later in Arizona and in China, I was always cautious as to conditions in the rear, and elsewhere, though not from any superstitious reason. I am convinced that it was this that carried me safely through more than one series of dangers.

I now attended as many lectures daily as possible, without reference to subjects, and took notes, as well as I could, all for the sake of getting a habit for future use, and for the language by ear. I gathered together some simple chemical apparatus and reagents, and tried to do things with them, quite blindly: for I had not the slightest knowledge beyond the names on the bottles. Of course I learned very little, and, incidentally, only the fact that I hadn't happened to get together two or three of the necessary reagents, doubtless saved me from being my own fool-killer.

I soon found a field of wider interest. In a second-hand bookstore, looking for an Italian grammar, I happened on an old German translation of Beudant's *Geology*. In the first part it treated of the physical characteristics of rocks. Reading dry descriptions was not at all encouraging: so I collected cobbles on my excursions, and tried, often not in vain, to identify them. Further within the book, came the fossils characteristic of the successive formations and geological periods; and the fossils were pictured. There were some quarries in the neighborhood of Hanover, and there, to my great delight, I found some petrifactions which I thought I could closely identify, and so know the geological period the rocks belonged to. My excursions on foot soon extended further a-field to include the *Deister* Mountains, where in several quarries I reaped rich harvests of ammonites, crinoids, etc.

From a two or three days' excursion I would reach home, a very tired boy, staggering under a load of fifteen or twenty pounds of fossils.

Hanover had a handsome theater which we attended two or three times a week. The seats were very cheap and the acting excellent.

Although I followed the lectures for the language, I really got a good deal from the subjects, as they treated of industrial processes and machinery, and because there was a collection of good illustrative models. I had become very soon able to follow well the lecturer and before long to take some notes.

Learning that there was a geologist at Hildesheim, I made bold to go there to see his collection of fossils, never having seen one before. He was Von Roemer, an eminent paleontologist of the time, and he received me very kindly, showing me drawer after drawer full of fine specimens of forms ranging through all the geological periods. When he saw that I recognized here and there a fossil from the rocks of Hanover, he felt in me the interest that a really great man does in helping the young beginner. During two or three hours he outlined, in a manner adapted to my understanding, the broad outlines of geological history, and, in a general way, the changes from certain older forms to younger ones in successive formations, and their interrelationships. Then he invited me to stay to dinner.

Professor Von Roemer was a member of Parliament, hence I saw him often in Hanover and on one occasion he took me with him on a geological excursion of several days' duration.

I think it was in this house that the ceiling was made of panels each of which contained a picture with a legend. Of three that I still remember, one was of Adam and Eve, the tree, the apple, and the serpent; the legend was

"Adam und Eva im Paradies
Gestohlenes Obst schmekt Suess."

Under another of a woman, playing a stringed instrument, and a man drinking, was written the verse ascribed to Luther

"Wer liebt nicht Wein, Weib und Gesang
Bleibt ein Narr sein Leben lang."

And the third with three men and a woman carousing had this,

"Unsere Vorfahren waren auch keine Narren."

The students of the Polytechnic Institute had their *Kneips*—drinking clubs—in imitation of those of the universities, including duels with the *Schlegel,* an important object of which seemed to be the distinction conferred by a scar or two across the face.

I attended many of their meetings in the winter, both in Hanover and on excursions of a day or two. As in the university societies, here the drink was only lager beer, but in vast quantities. I counted once ninety *Schoppen*—two-thirds of a pint each I think—drunk by the winner of one challenge. The limit reached by me was twenty. That winter's experience in German student societies was enough for me; I never repeated it. I mention it only in order to record a good effect. Never since have I been able to swallow even half a spoonful of undiluted spirits, which had not been the case in New Haven. Nor have I cared for beer. The pessimism prevalent among graduates of German universities is often ascribed to excessive drinking of beer.

During the winter my mother went to Berlin; Dr. Noyes had already gone elsewhere to visit the hospitals in great cities; and I changed to an apartment offered me by an acquaintance who was leaving it for the winter. The change made for loneliness, which was, however, soon relieved by a new companion. For, one morning looking through the daily paper, I saw an advertisement, of a Newfoundland dog, giving an address of street and house, and specifying second floor No. 2. Thither I went, and my rap on door No. 2 was answered by the customary *herein*. When I immediately entered, imagine my confusion and that of a lady in night dress who, sitting, combing her hair with her back to me, saw me in the mirror. Fortunately a large parrot accounted for the intrusion by repeating the invitation, and we both laughed as I withdrew to wait in the hall. When she came out the dog was brought forward. He was a beautiful young animal nearly full grown, and one of three that had been sent from the royal English kennels as a present to some one of the royal family in Berlin. On the journey this one, still a very young puppy, supposed to be dying and in danger of infecting the others, was discarded in Hanover. She called him Bon Coeur; I bought him; and he kept his name, which was true to his character. He was both affectionate and intelligent. It took only one lesson to teach him to go back and hunt through the streets we had passed, and bring back anything I had dropped, and he soon learned to do many other things. He had, from the first, suspicion of any one not well dressed, and seemed to have a certain critical idea of physiognomy, as well as a profound dislike of any one in the dress of a priest—traits that sometimes produced uncomfortable situations.

It was arranged that I should meet my mother at the end of May at Wiesbaden; so with the approach of that month I bade good-by to Hanover, and went to Cologne and Bonn.

During the month of May, wonderfully beautiful that year, I tramped up and down the valley of the Rhine, and into the interior on each side. To my young imagination that month was a delight. The valley was as yet untouched by the wand of modern industrial desecration, the air was still pure, the sky serene, and the castles crowning the hills were still real moss and plant clothed ruins.

Who can describe the effect of it all on the impressionable imagination of a boy fresh from the land of modernity; the charm of the ever-varying scenery, the vine-clad slopes, the echoing cliffs of the Siebengebirge, the castles, the Lorelei-haunted Drachenfels, and the romance and legends of the past.

Then to me there was another interest which seemed to intertwine itself with the romance and poetry of the region. Here for the first time I came in contact with eruptive rocks, the striking sanadin trachyte cliffs of the Drachenfels and the porous sapphirine-bearing lavas of the Laacher See. Truly I was entering, though gropingly, into geology through the gate of romance.

Bon Coeur was always with me, sleeping on or near my bed at night, and tramping alongside by day. Admired by all, he introduced his master to many, so that I never lacked chances to talk with men and women of every class, whether residents or travelers.

About the end of May, I joined my mother and sister, with her little daughter, at Wiesbaden, where we stayed a week or more. As I had come from the free life among all the natural charms of the Rhine, the artificiality of the fashionable watering place repelled me, and there remain only few impressions; one, of romantic rides among the hills with an attractive American girl,—rides that she has doubtless forgotten; the other, the Casino with its gaming tables. I do not remember the crowd of players, of that time, as having the appearance of tense sordidness that now marks those at Monte Carlo. It may be that the players then were mostly people who could afford to play for the pleasure only, while now the facility of travel has opened the way for different classes. It was on a Sunday morning that I first entered the Casino. As I saw the piles of gold accumulate and go, now to the bank, now to the player, the fascination took hold of me, and I placed a louis where I had seen the winner of a pile place his, straddling two or more numbers. My neighbor had also straddled again, and when my louis won, I left it, as I had seen others do, and it won: I kept on leaving the winnings until there was a small pile of gold, then once more—this time to see it vanish into the bank. I tried again till I lost several pieces, and stopped. Immediately a neighbor, thinking it time for luck to turn again on that spot, put down two gold pieces and lost three times. I had learned, and went to the hotel. My sister was alone, and making her promise not to tell, I told her my adventure. Then making me promise secrecy, she said: "Mama did just so last Sunday, when she saw the crowd about the tables she was horrified at the gambling, and because it was Sunday. But her curiosity led her to an opening at the table. Then drawing out a louis she timidly dropped it; it fell on the line between two numbers; and won; she left it as she had seen some one else do, and it grew to I think a hundred francs; she left it again and lost. Then, as you did, she risked again, and came home wiser. I had to promise not to tell you."

My dear mother never knew of my venture, nor that I knew of hers.

From Wiesbaden we went to Freiburg in Breisgau. Here my brother-in-law met us, and he and I started on a tramp through Switzerland. On this trip we sent a small piece of baggage ahead by post, to be overtaken every few days, while each of us carried, strapped to our shoulders, a change of underclothing wrapped in oiled silk. Thus provided, we could sleep at any chalet on our way, and not be committed to any particular route.

Switzerland was still unspoiled. Mountain climbing by rail had not yet vulgarized the Mürren, Jungfrau, and Rigi. Perhaps there may have remained among the English a little of the attitude of their fathers of the eighteenth century, who bewailed the annoyance and discomfort of having to cross the gloomy Alps. In contrast one remembers with pleasure Miss Radcliffe's heroine in the "Mysteries of Udolfo." Whenever, on her way to Italy, she came upon grand mountain scenery, she "descended to write the following lines."

We tramped several weeks—over the St. Gothard; over the Furka and the Gemmi passes to the Rhone and Chamounix, with many minor climbings. During it all I found great interest in the grand scale on which Nature had sculptured to produce such wonderful effects, and to light them with the rose of dawn and tints of sunset. Here for the first time I awoke profoundly to realize the charm and grandeur of Nature in all her moods. It was on the St. Gothard Pass that I was first consciously impressed by the beauty of mountain structure, when I saw the slopes descending from the lofty peaks on each side, in long, sweeping lines, of ever-changing curve, to melt together in forming the pass. This impression once made, naturally led me ever after to note the external details of mountain structure, first for their scenic effect, then in their relation to the kind of rock masses and to the angle of stratification.

Then there was the delightful first sight of the glaciers—great rivers of ice—sweeping in magnificent curves down the steeply graded valleys, fed by similar tributary glaciers, each carrying, on each side, in long, continuous ridges, the load of rock contributed by avalanches; then, too, the loudly thundering echoes of these avalanches! The days and weeks ran pleasantly by without count. Often, at night or on the tramp, we found agreeable company. Even Bon Coeur found it delightful, there were so many goats to chase up the steep, rocky declivities.

It had to end sometime, so we returned to Freiburg, and all of us went to Paris. Here we took an apartment on the Champs Elysées, where my brother-in-law left us to return to New York.

After devoting some time with my mother and sister to the Louvre, I haunted the Jardin des Plantes and its Museum.

Every day I made my way along the quaies on the left bank, dallying at the stalls full of old books or prints, while some had minerals or fossils. I came to know just what minerals each man had, and what he had sold or put in afresh since the day before. In a desultory way I had come to be able to recognize quite a number of minerals merely from having repeatedly seen them through glass in collections. So one morning I noticed something as new and interesting. Labeled as topaz lay, in a broken saucer, two crystals of quartz (rock crystal) colored red by iron oxyd in innumerable cracks, and with these a beautiful crystal, more than two inches long, which I recognized as real Brazilian topaz. The price for all three was two francs! I have that topaz still, and have never seen its equal in any collection. It must have been stolen and just sold to the dealer, who probably bought it for a few centimes, not realizing that it was worth hundreds of francs.

Soon after arriving in Paris, I joined a small class for private instruction in geology by Charles d'Orbigny, a little gentleman covered with snuff, the brother of the eminent paleontologist Alcide. We met every day at the Jardins des Plantes; and, sometimes, in pleasant weather, we made excursions near and far to places of geological or paleontological interest. These were very often chalk pits, and we sometimes had to walk through Paris covered with chalk dust, but reckless and happy in the possession of a load of fine fossils.

The course was not printed, but we each had a manuscript copy. It was extremely elementary, even for that time. Monsieur d'Orbigny read from his MS., which treated only of the rocks; then he showed specimens, closed his book and dismissed us. Nothing could be more dry or less instructing, but I profited very much from the excursions.

One day Bon Coeur was missing. I searched in vain, and no answers came to advertisements. There was a popular actress, who had an apartment over ours, and who petted the dog whenever they met on the stairs. One day she told me she had found Bon Coeur in the Bois de Boulogne and had locked him up in a house she had there; she asked me to drive there with her to bring him back. All the way she begged me to sell him to her, she would pay any price, but I refused to listen to any offer. The house was small, standing in a garden, orientally furnished, and the walls covered with armor of all countries and periods; these struck even me as odd belongings for Madame ——. After showing me through the rooms she took me upstairs into a chamber, and brought Bon Coeur from a closet. Then sitting on the edge of the bed—there were no chairs,—she petted the dog affectionately and begged again that I would name a price.

When I objected politely but firmly, the tears came into her eyes, and she said:

"Please come and sit down; let us talk it over."

Now I was young; I was also naturally distressed to see a beautiful woman in tears; and those tears, and those eyes, were strongly attractive; but that beautiful woman was an actress. Bon Coeur stood between us licking my hand, his big, soft eyes seeking mine. Did he feel that he was on the scales being weighed, and lost forever? and why?

I did not take the seat, but I think I had tears in my own eyes as I told the beautiful woman that it would break my heart to part with Bon Coeur.

"*Eh bien! Monsieur ne vent pas,*" she said, and we parted after she had led me in silence to the door.

As I walked homeward, with Bon Coeur bounding gaily by my side, and reviewed the recent situation, I knew that the whole scene had been carefully planned, and that only my strong affection for Bon Coeur had kept me from trying to stop those effective tears. My imagination was working, and I pictured to myself all sorts of similar situations that might be vastly more important Rubicons than the one I hadn't crossed. My sense of perspective had suddenly enlarged to be of future use; and I owed to Bon Coeur and Madame —— a realization of the overwhelming dominance of the psychologic moment.

The situation had been new to me, I thought it over. Something had kept me from sitting beside Madame ——; what was it? Was there within me a consciousness of greater danger in nearness than at a distance? Could woman exert a force varying like that of the magnet in the inverse ratio of the square of the distance?

I had not, before, thought of woman from this point of view. Now it struck me that most people must be poor magnets, or things in the world would go queerly. On the other hand, might there not be women whose power of attraction varied in different ratios to the distance?

But then, *Great Heavens!!* only suppose you should be attracted to a woman whose power varied in the inverse ratio of the *Cube* of the distance! I gave it up.

So, thanks to Bon Coeur and Madame ——, there was illuminated for me a little corner in the philosophy of life that should be useful—if one's inner consciousness should manage to flash a light into it in time to serve.

I think I met Madame —— once again. There was a masked ball for the benefit of actors. Her name was among those of the patronesses. A slender domino slipped a hand under my mask and over my smooth chin, and a melodious woman's voice said maliciously:

"Ah oui! c'est le Monsieur du Bon Coeur; il est très, très jeune, le bel enfant."

About this time, with the coming on of autumn we gave up housekeeping, and went to a pension at 25 Rue Royale. It was a pleasant change; there were many boarders of different nationalities, and as they met every evening in the salon, which was very large, I had better facilities than before for learning French. The older ladies played whist, the younger people danced.

I was always somewhat diffident about asking a lady to waltz with me, because I was not good at it. One evening when I said so to a lady with whom I sat talking, she very kindly offered to improve my steps, and she really did it by dancing with me every evening through the week she was at the pension. When she left I had not learned her name. Several years later, at a small supper after the theater in Washington, I had the leading actress—Mrs. Lander—for neighbor. She said: "Possibly you don't remember that I overcame your bashfulness in dancing in Paris." In Paris she was Jean M. Davenport; not the blonde Fanny of later years.

At this pension I formed a lasting friendship with an old lady, Baroness de Pailhez, widow of one of the generals of Napoleon I. Although nearly eighty, she was young at heart, full of *cameraderie,* and altogether the kind of woman whose friendship is a boon to a young man. She took me on excursions, and on some kinds of shopping.

I remember two occurrences, a year or two later, in both of which there was the shadow of pathos. One was the sale of objects left by the late Marguerite Gautier—the original of La Dame aux Camelias. The sale was in the apartments of the unfortunate woman; the objects were chiefly costly presents that had been showered upon her. We were the only visitors as yet. In looking at these things placed in the different rooms as though just left by the owner, the whole seemed a setting of a scene in which one ought to feel the presence of Dumas's frail but lovely heroine.

The other incident was in a very humble room. In the attic of a high house (I think it was in the Latin Quarter) there lived still the *amie* of Beranger. Unmarried, they had grown old together. He had died only recently; and the generously impulsive ladies of Paris were driving thither to climb the five flights, to help Susette by buying the beautiful purses and portemonnaies she knit in silk.

Among the ladies at the pension there was one who appeared only in the evening. I never happened to talk with her, as she always sat by herself in the same seat, somewhat retired in the large salon. To my inexperienced eyes she seemed to be about forty years old and rather handsome, with a good complexion. The building, of which the pension occupied the second floor, surrounded two sides of a court, and an open corridor gave access to the rooms in the rear, one of which I had. Once as I was going along the corridor, I heard a shrill, cracked voice calling for a maid, and looking up beheld something horrible, it seemed like a hairless, hollow-eyed skull, which quickly disappeared behind a curtain. When I spoke of this to Madame de Pailhez, she laughed: "So you have seen her? you have looked upon, perhaps the last of the minor *mistresses* of Louis Quinze. She is nearly a hundred years old. She is without hair, without teeth, without cheeks, only skin wrinkled on bone. Her hair and teeth are false, her cheeks are springs under the skin, and the wrinkles are filled up and painted over every morning. Doesn't my maid know it all?"

I am not sure that it was on this visit to Paris, or on the next one, that I saw the entry of the army returning from the Crimean War. As I remember, the Emperor and Empress reviewed the troops, in the *Cour de la Reine,* as, clad in ragged uniforms and with tattered flags, they filed by for hours in endless procession, entering through the great portal from the Rue de Rivoli and passing out onto the embankment of the Seine.

In January, 1856, I took a room in the Latin Quarter, to be nearer the Jardin des Plantes, but almost immediately came down with a severe cold on the lungs and fever which kept me in bed. Early in February Dr. Chomeill, the eminent lung specialist, examined me and, finding a spot affected, ordered me off to Naples, with a big bottle of cod liver oil and quinine, and instructions to have myself examined every three months. I find from letters sent home, by my mother, that I was supposed to have consumption. The spot was there without doubt, for it was found in all the later examinations, but doubtless healed, though the bottle was never opened.

CHAPTER V

ITALY

We bought tickets to Naples via Marseilles. As everybody said that Bon Coeur could not live long in the heat of southern Italy, I gave him to Madame de Pailhez, who was devoted to him. She gave him to her married daughter, living in a neighboring town. Here Bon Coeur became so great a favorite that because he was a water-dog and there was no stream near, the authorities built a pool for his canine majesty.

The voyage from Marseilles to Naples by steamer was all warmth and sunshine; and I spent most of the daytime stretched out in one of the boats hung along the side of the deck. I don't remember whether the voyage, touching at Leghorn, lasted two days or how many more; I think of it now as one of ecstatic delight, for I had never before been in a Southern atmosphere. The soft coloring of sky and of the calm sea, the brilliancy of the sun by day and of the moonlit night; these were a revelation of the great possibilities of Nature, whose moods could range from the awful grandeur that enthrones the giants of the Alps, to the charm of this languid atmosphere.

When we steamed slowly past Corsica, with its range of peaks rising seven thousand and to nearly ten thousand feet from the blue sea, I was seized with longing to roam in its mysteries, little dreaming that I was to live, twice for months, a life of romance in its fastnesses.

We reached Naples the 23d of February, 1856. I can give the date because I have always remembered it in saying that in that winter the peach trees were in full bloom February twenty-third; it seemed so remarkable to a Northerner. It was morning when we entered the bay of Naples, passing between the guardians of its entrance,—castle-crowned Ischia on the north and dreamy Capri on the south. Before us lay the bay, bordered by brown, verdure-mottled cliffs backed by green hills and mountains; the shores, of either side sweeping in gentle curves to meet in the long lowland between Castellammare and Naples. And in this dreamily distant background, the cone of Vesuvius, rose from the crater of its vastly greater progenitor, with the peculiar beauty of outline that Nature grants only to volcanoes. On this calm morning the cone was a pedestal from which rose lazily the high column of vapor—a pillar of cloud by day, and a pillar of fire by night.

At that time Naples was still a city mediæval in its aspects, its type still in harmony with the Castello del l'Ovo, the Castel St. Elmo, and the ruined palace of Donn' Anna. The heights that dominated it on the north, which, with their declivities, are now densely built over with houses, were then covered with the grounds of villas—beautiful gardens and groves intermingled with vineyards. From the face of the cliffs, that dropped sheer down from this highland, there grew out a tangled, luxuriant plant life—a rich green mottling on the brown volcanic tufa. Below, between this and the blue sea, lay the city of winding streets with old palaces and old shops showing local wares, from rich silks to macaroni.

The larger part—the part to the east of the Toledo (now Via Roma) was the Naples of the past; its people carrying in their blood all the strains of conquering invaders, Phœnician, Greek, Roman, Goth, Norman, and Spaniard, grafted on the swarthy, curly-haired and black-eyed primitive Mediterranean stock. The Neapolitans of town and country were a merrily-singing, color-loving, care-free lot, responsive to politeness, quick to revenge, and withal lovable—unless they suspected you of having the "evil eye."

The streets of this part of the city, dangerous to tread at night, abounded in *lazzeroni, ladroni,* and self-mutilated beggars. Mothers sat everywhere on sun-bathed steps, skilfully depopulating the heads of their offspring, and silent processions of men wholly enveloped in white, with only holes to see through, slowly followed the dead to burial.

Such, and much more, in its peculiarities, was the Naples of the Bourbons. Garibaldi's dramatic irruption started the change, and cholera did the rest, by causing broad highways to pierce through, letting in sunlight and air.

We found a very attractive apartment at No. 263 on the Riviera di Chiaja, facing the sun. The whole blue gulf, the whole varied landscape in all its glory of form and color lay in view, from the towering cone of Vesuvius around the eastern and southern shore to Capri. Neither the fascination of the Golden Horn, nor the charm of the Bay of Yeddo, can compare with this, in all-loveliness of sky and sea, and land.

I had come to Europe to continue my education, and I was not doing it. Apparently another year was to be passed only in travel, a forerunner of the army of boys who have been brought over there to lead desultory lives, losing the traditions of their country, and the chance of fitting themselves for useful careers. In my case it was most fortunate that I had at least one controlling interest that found everywhere in Nature a spur to activity. I look back on this as my salvation in more ways than one. And nowhere could I have found a better region in which to follow my unguided instincts, in applying what little I knew of geology to a farther prying into its secrets. I was not consciously studying the science, I was merely having a good time in doing things. In roaming through the surroundings of Naples, my interest in the volcanic phenomena and rocks was intimately intertwined with the love of adventure, and with the romantic background of Nature and people.

I think my first excursion was to Vesuvius, which I climbed with my mother. There were then no *funiculari;* we rode on donkeys to the base of the cone, and thence made the ascent on foot. Of course we lunched on eggs cooked in the hot ashes on the edge of the crater. The descent of the cone was by sliding and stumbling down the steep slope of loose ashes.

On all of my first excursions I had the pleasure of my dear mother's company, and of her enthusiastic interest in the things that interested me. I realize now that I derived my love of nature and romance from her, and that it needed only the influence of environment to develop it. I haunted Vesuvius. I liked to trace the destroying streams of lava that during the centuries have coursed down the slopes to the sea; and I noticed, as well as I could, their differences in structure. Then there was the pleasure in searching for fragments of limestone hurled out from great depths. They had been changed in the subterranean laboratory to a marble, and often contained a variety of beautifully crystallized minerals peculiar to Vesuvius. Of course I did not know anything about these minerals, except that they were beautiful in my eyes; and I had been told that they had been torn from the great limestone formation that made the mountains of this part of Italy, but that such minerals came only from the volcano. There were other minerals that attracted my attention. In places, on the lava streams, there were great cavities, and where the imprisoned gases had escaped from these, the surfaces of the openings were coated with crystals of iron oxides.

I made excursions to the Solfatara, the crater of an extinct volcano, where the rocks were being decomposed by gases, and various efflorescent minerals were being formed in the process.

Comparing these things on the active Vesuvius and on the dying Solfatara, I remembered my awakening when I was learning German to the realization of the story lying in the identity of many German and English words, and I saw here a wider application of the idea, and its extension to the mineral kingdom. Rocks and minerals were no longer dead: their stories were in process of forming before my eyes, though to me still unreadable. Having as yet no knowledge of this alphabet, chemistry, I began to draw more remote inferences from grouped observations, and to generalize. Here were two neighboring volcanoes, each showing a different kind of activity; in one the activity was constructive, in the other it was destructive. From Vesuvius there issued ashes to build up a mountainous cone, and gaseous material and great streams of liquid rock containing much imprisoned gas, or strong-smelling vapor, that made the lava porous, and in escaping that could also deposit crystals of hard minerals.

In the Solfatara, on the other hand, I thought I could see the remnant of a volcano that had once, like Vesuvius, built an ash cone and produced lava, but which had been reduced by some process to a low crateriform bowl surrounded by remnants of its former greatness. The only signs of activity apparent to me, were the issuing clouds of vapor containing a gas that seemed to resemble in odor that on Vesuvius, mixed, it seemed, with steam, and with boiling mud. Here also mineral substances that tasted like alum, were deposited like an efflorescence on the surface.

As the only active agencies that seemed to me to be common to Vesuvius and the Solfatara were heat and gas and steam, I tried to correlate them, and drew the inference that heat and gas and water were active agents in the building up of one volcano and in destroying the other, but that there was some other factor beyond my power of reasoning.

I was very sorry that I had no book on geology, and that I had not read about volcanoes; but I have since always been glad that I was left to the resources of imagination: for the effort to explain phenomena myself, whether the inferences came right or wrong, was invaluable as education.

After this the whole field of volcanic formations around the bay of Naples appeared as a correlated whole: the active and extinct volcanoes, the solfataras, hot springs, and dead craters, and the thick strata of tufa (volcanic ash containing bombs of porous ejecta) spread far and wide over the country, and the evidence of change of level at the temple of Serapis at Pozzuoli. I could easily have made a geological map of the region.

I did not know it then, but the experience thus gained, wholly from my own observations, was perhaps worth the loss of a year at school. Thenceforth I collected and accumulated specimens, hoping somehow and somewhere to learn something further about the story of volcanoes and their deep forces.

At Pompeii the excavation had covered only a small area, and only in a desultory manner; and the trip thither was an experience very different from that of today. At that time one drove most of the way under an endless arbor of macaroni hung out to dry along the sides and above the street. In the afternoon the road was alive with the peasantry in their attractive costumes. *Carricoli* on two wheels, drawn by one horse, carried six or eight gaily dressed men and women homeward bound, while two or more ran behind, holding on by ropes—all gesticulating, laughing, and joking in sign language with those they passed. Beggars in rags, showing horrible deformities or gaping sores, were everywhere. And there was an unending line of boys, running ahead of, alongside and behind the traveler, turning "cartwheels" and jumping "leap frog," in untiring expectation of coppers.

Pompeii, even in its then partial state of excavation, showed much of the life, art, luxury, and vices and sudden death of its people. In Herculaneum, on the other hand, there was evidence of the more refined side of the civilization. The wealth of bronze statuary and of rolls of manuscripts already found, raised hopes that the villas buried under the great streams of lava may yet fill out to us the store of the lost literature of Greece and Rome, and further enrich the world with treasures of Greek art.

We stayed a month or more at Naples, during which I roamed far and wide around the bay. The stately lines of Virgil haunted me, and lying on the citadel mound of old Cumæ and on the heights of Baiæ I reveled in day-dreams; the Trojan wanderers and the *Sybil*, the *Phlegraem* fields and Avernus, and the brilliant life of Baiæ all became real. Those weeks are in my memory one continuous happy dream.

There came, however, one nightmare. Before leaving Paris we had drawn the balance on our letter of credit and had written home for a new letter which should have reached us in Naples, but it had not arrived though overdue. We had spent the money we had brought with us, we were in debt for rent and many purchases, tradesmen had begun to dun; and there was no Atlantic cable. On the 1st of April when I returned to our quarters, I found people on the stairs waiting to be paid. This was a new experience with us, at home or abroad. I had charge of our money matters, and felt responsible for allowing this condition to occur. Retreating into the street, I tried to think out how to act. We knew no one in Naples, excepting the U. S. Minister, and I did not like to go to him. Suddenly, as I walked, I noticed a sign—"*Turner & Co. Bankers.*" In an inspiration of despair, I entered and, handing over my card, asked for Mr.

Turner. I was ushered into a room where an elderly man looked at me inquiringly. He must have seen that I was trying to suppress something: for he asked me to sit down; perhaps there was moisture in my eyes, and I found it hard to speak. Then as his expression softened I told him directly the whole story; how we had written from Paris for a letter that had not come, and how we had, in writing later, mentioned that we had written. I told him that, finding people waiting on the stairs, probably for the coming in of my mother, from whom I had kept knowledge of the condition, I had come to him. After I had stopped, while my heart was thumping, he looked at me a minute, in thought, and then said: "Mr. Pumpelly, how much do you owe?" "I think it must be about a hundred pounds," I answered. Then standing up he said: "Come with me."

Going to the cashier he said: "Give Mr. Pumpelly twenty-five hundred lire." The strain was over, and in thanking him I could hardly control the reaction. He had said almost nothing during the talk, and had asked only the one question. And he had offered no advice.

The new letter came within a week.

When I next visited Naples, after nearly forty years, Mr. Turner was dead, and I took pleasure in telling the incident to his son, who then had the bank.

The date we had set for going to Rome soon came. The day before leaving, I went to a café and, while enjoying an orange sherbet, missed a stick-pin that had been a present from my aunt, and which I valued. I thought I had had it on in the cab that had brought me there, and I looked for it in vain on the sidewalk; then remembering the number of the driver, I went to the Chief of Police, who told me to come the next morning. When I returned, he said he had the man, and ordered an attendant to bring him in. The driver was brought in handcuffed. In a very brutal manner the chief demanded that he give up the pin, but the man protested his innocence, saying: "The signor will remember that he left his umbrella in the cab, and that I took it to him in the *café;* if I had been a thief I would have kept the umbrella." I believed the man was innocent, and said so to the chief, but he ordered him back to his cell, telling him he should never leave till he should give up the pin. When I protested, the chief insisted: "He stole it and has doubtless got rid of it; I have confiscated his horses and cab." From the way this distributor of justice spoke the words, I knew there was no hope for the poor fellow; like those of the patriots of 1848 who had not been flogged to death or hung or died in prison of typhus, he would die slowly in a filthy cell. The Chief of Police would inherit the horse and cab. I reported the incident to our Minister, but he said it would be useless to interfere, there was no hope for an Italian who once came into the hands of the corrupt police except through the influence of the *Camorra* which would be exerted only in favor of one of its own members. Let us hope that this *veturino* lived till, four years later, the red-shirted liberator opened the prisons and gave him a chance to knife the Chief of Police.

We began our journey to Rome by train to Capua. I think these twenty miles of track formed the only railway then existent in all of the two Sicilies.

The next day we hired a diligence at Capua and we used this kind of conveyance on the different stages of the trip, spending nights at the very primitive inns. We were several days on the journey. I don't remember how many, but they were days of much anxiety, for we learned only after starting that we might at many places be stopped by bandits and be either robbed, or more likely held for ransom in some lonely mountain retreat. Such a situation may seem romantic in retrospect, but it did not, at the time, look so to me, a boy in charge of two women and an invalid child, a maid and no man but the local driver. The scenery and the peasantry were wonderfully picturesque, but whenever we approached a wildly fascinating scene we would expect every turn ahead of us to be the lurking place of a group of brigands. So too no innocence attached, in our minds, to the picturesque peasants we approached on the road. But the journey passsed without any such adventure.

The only night station that I remember was Terracina, where we spent two nights and a day. I remember it only because there was a terrace on which there were vestiges of an ancient Roman villa. Here I passed the whole day in collecting fragments of the beautiful colored marbles with which the Romans adorned their buildings; or lying in the shade of a tree, dreaming day-dreams under the influence of the Italian sky and of the widespread view of coast and sea.

Then came the long journey over the malarious Pontine Marshes, and there was at least one night in a little *tienda* where our horrible food came chiefly from things like gigantic sausages that hung from the ceiling. What I remember best was the driver's "*Ecco Roma,*" and our first sight, in the far distance, of the Eternal City.

We rented an apartment, all the second floor of No. 56 Via Babuino.

Except in its striking monuments, it is difficult to recognize the Rome of 1856 in the modern city, to such an extent has it been changed by new thoroughfares and modern architecture in monuments and public offices. Extensive parts, including what were the picturesque gardens and villas on the Pincian hill and outward on the Campagna, are wholly new and monotonous. Old streets, whose names preserved traditions out of the remote past, are now called by the commonplace names of to-day, of men of the Italian unification or even of ephemeral politicians. The stamp of history and romance and beauty in its architecture and surroundings is being fast destroyed in the inevitable adaptation of a small city to the necessities of a great metropolitan population.

In 1856 Rome was the city of the Popes. Palaces now half or wholly shops, were the dwellings of princes; everywhere the streets were made brilliant with the colors and gold of the somewhat shabby equipages of the dignitaries of the Church; and one's way was threaded through the distinctive costumes of the different orders of priests and monks moving hither and thither on the narrow sidewalks, or one was halted by the passing religious processions. It was yet the time when Rome, in its second glory was still at the height of its pride. enveloped in the aura of spiritual and temporal power, and while men still believed. Darwin had not yet hurled the bomb of evolution, the iconoclasts had not breached the defenses of inspiration; and the war dogs seemed cowed and sleeping after their abortive victories of 1848.

I believe we stayed about a month in Rome. However long, it was a time of new experiences and new sensations. Much of my time was passed among the ruins and on the Campagna. I found pleasure in searching for colored marbles in the ruins of the palace of the Cæsars. I loved to roam among the tangled vegetation that still covered the remnants of villas and baths. Ignorant of all but the mere outlines of history, I would lie on the high top of an arched wall dreamily basking in sunshine among flowers and grass, delighting in the beauty with which Nature clothed the decay of greatness.

With my mother and sister I visited all the galleries, churches, catacombs; but while they interested me, I was too inexperienced really to appreciate pictures, statues, or architecture. I had, however, the ability to dislike what seemed to me really bad; I hated the rococo in architecture and in decoration, and the anachronistic portraits of smug priests introduced into grand paintings distressed me.

Our favorite excursions were to Tivoli, lunching in Hadrian's Villa or in the Villa d'Este, and to Frascati; or driving on the Via Appia, and to the Janiculum.

My mother and sister made me go shopping with them, and as they always looked for old laces, I came to know quite well all the different kinds. What I really liked was to haunt with my mother the antiquity shops, collecting old engravings. They were often badly stained or even torn. Our apartment extended from the Via Babuino through to the street behind, and had a large loggia open to this street: here I placed a table, and with chemicals restored the damaged engravings so successfully that they are still quite good after nearly sixty years.

We found ourselves always coming back to the Colosseum. It was still in nearly the same state of preservation as when, in the middle of the eighteenth century, Benedict XIV stopped its destruction by giving it a religious character. Plants still covered its outlines and grew out from its walls enriching its grandeur with tangled verdure. There had, as yet, been no excavation; the great arena was still intact, except where time had left openings into dark underground passages.

It was its grandeur that brought us there to sit in the full light of the sun; but in moonlight it was the fascination of its darkened arches above, and the sense of mysteries and danger below our feet: for beneath were supposed to be the lurking places of robbers.

Across the middle of the Arena lay a great column on which we were fond of resting. On this I sat one brilliant midnight with the same attractive American girl with whom I had ridden over the hills of Wiesbaden. Our talk had a background of half-expectation of interruption by some figure arising from a near-by hole, and of wonder as to what we should do if he really came. All this she has probably forgotten, except, perhaps, that there she lost a diamond from her ring.

Another midnight I was there with my sister. Our way back lay through the as yet unexcavated Forum and up the long ascent north of the Capitol. We were talking, and had not noticed a challenge when its repetition, and the click of a gun-cock, made me shout *ami* in time to save my life. Rome was then occupied by French troops, and was under martial law. Only a short time before, a young Englishman, climbing the steps from the Piazza di Spagna at night, had been shot and killed by a sentinel for not answering the challenge in ignorance of the language.

In leaving America, we had brought no letters of introduction, and we made few acquaintances in Rome. There was, however, a Monsignor attached to the papal court, whom we came to know, and who arranged for us a private interview with Pope Pius IX, and instructed us in the necessary details of dress and etiquette. We traversed long galleries, and were ushered into the presence of the Pope. He received us pleasantly, asked each of us a few questions, then, knowing that we were Protestants, instead of expecting us to kiss his slipper, he held out his hand for us to kiss the ring; after that, successfully walking backwards, we left. I remember him only as a kindly-looking man dressed in white with a stream of snuff all the way down the front of his robe.

We reached Florence in May and went to a pension kept by a Signora Molini. We were delightfully placed, in a large garden on the south side of the Arno, having a fine view with the city in the foreground, and Fiesoli on the heights in the distance.

Florence affected me very differently from Naples and Rome. The people were more like those farther north, and I missed the colors and the easy-going life of Naples, and the more stable but distinctive traits of the Romans. With all the varied beauty of hills and valley, there was lacking the combined fascination of Nature with very, very old romance that controlled my thought in the South. And there was also wanting an interest in the geology of the surroundings.

What I did get was a beginning of love for art, in the galleries, and for architecture, in the churches and palaces. So most of my time was passed with my mother, visiting these and hunting for engravings.

CHAPTER VI

IN THE MOUNTAINS OF CORSICA

One beautiful morning I awoke with a longing to wander forth for a whole day; and saying that I would not be back till night, or the next day, I went off to go by train till I should see some attractive region. Nothing tempted me to get off before the end of the railway at Leghorn on the sea. Here I thought to stay till there should be an afternoon train to Florence. The sea attracted me, and I wandered away from the city to get into the salt water and to look for shells. On my way back I saw a steamboat which they told me was about to start for Bastia in Corsica—a trip of only a few hours. This decided me, and I went aboard, not realizing where this decision was leading me. I thought merely to see Bastia, and take the boat again on its return trip. But soon after landing, seeing a door plate marked "Consulate of Great Britain," I entered to get some information, and was very pleasantly received by the Consul. He had lived many years on the island, and was able to tell me much about its history, its primitive people, and the wonderful scenery of its mountains. The Consul excited my interest so much that when he added that I ought not to leave without going by early coach in the morning to see the town of Corté in the mountains, I went directly and engaged my passage thither, intending to come back on the return trip and take the night boat to Leghorn. All this seemed so easy and so delightful. When I had told the Consul that I should have to draw some money on my letter of credit, he took me to a local banker, telling him to let me have what I needed;

and, taking the money, I left my letter with the banker for safety in the event of a holdup of the stage. I slept in the inn, that is I thought I was going to sleep sweetly after a good dinner, but my dream was that I was burning in hell. I was; and awoke throwing off the covering. There was a broad, dense column marching from the footboard to the head, all moving to disappear under the pillow. Gathering the mass in the undersheet I rolled that army up and—but it isn't necessary to tell what I did. Then I managed to get through the night on the floor. Evidently the natives were immune, and I might as well say here that my own experiences in Corsica and later have made me immune as regards most of the insects that claim intimate acquaintance.

An interesting drive of a few hours brought me to Corté, a town unlike anything I had ever seen. It was like being carried back to the tenth century. The houses were perhaps much older. Standing in the mountains, on the irregular heights bordering a torrential river, the houses of stone with foundations of masonry starting low down on the faces of the cliffs, seemed to be part of the rock itself; and the gloominess of the dark massive material, the absence of glass in the windows, the narrow, crooked streets, all were in keeping with what the Consul had told of the somber nature of the people, and of the Vendetta. I shall say more about Corté later.

The Consul had given me a letter to a Mr. Parodi—a merchant of the town. He was just sitting down to breakfast and asked me to join him. From him I got much more information about the island, and when he ended by telling me that I ought not to turn back without going on by a stage that was soon to start, to where the road crossed the pass at the foot of Monte d'Oro, and that he would give me a letter to the chief of the Forest Service, who lived just there, I threw my resolution to the winds, and went on, having written to my mother saying that I might be away several days.

At that time this road from Corté across the mountains to Ajaccio, and one along the coast from Bastia southward, were, I think, the only routes passable by wheeled vehicles; everywhere else there were only trails for horses and donkeys.

A drive of several hours brought me to the pass. The road lay ascending through a pleasant cultivated country, with villages perched on craggy hilltops, as I have since then seen them in the Ligurian coast and in the Khabile country of northern Africa. At first for a long time we passed many groves of large chestnut trees; but as our way neared the higher range, the scene changed; the lofty Monte d'Oro and Monte Renoso towered in the distance, and later we entered the superb forest of Vizzonova, of larches great in height and thickness. On the pass I got out at the new wooden house of the Chief Forester. That official was absent, but his wife read the letter and welcomed me; her husband might not return till the next day, but he would certainly wish to have me wait for him, and she would try to make me comfortable in the meantime. Indeed there was nothing else to be done: for the stage was already out of sight.

It was a glorious afternoon, and having seen that I had something to eat, Madame, my hostess, proposed that we should stroll out to get a good view of the mountain, and led the way to her favorite outlook. There we sat down on the brown carpet of larch needles. Across the pass the mountain giant rose before us more than seven thousand feet above the sea. Rising at first with gentle slope out of the great forest, and growing ever steeper, it towered a gray, ruggedly sculptured *massif* of granite. We sat for hours, held by the enchantment of the scene, and till the play of changing tints of sunset left the peak. And I found another delight in that long afternoon. My guide was a charming woman, under thirty. In our talk, as the hours passed, and we became confidential, with the impulsiveness of the French nature she told me much of her life. She was a Parisian and, before marrying, had sung in the opera in Paris. Then, with her husband, she had been suddenly transplanted to this lonely spot, far from any other houses, where, in her husband's frequent absences, her only resource was her music, and a love of Nature that had grown within her during two years of isolation among the mountains.

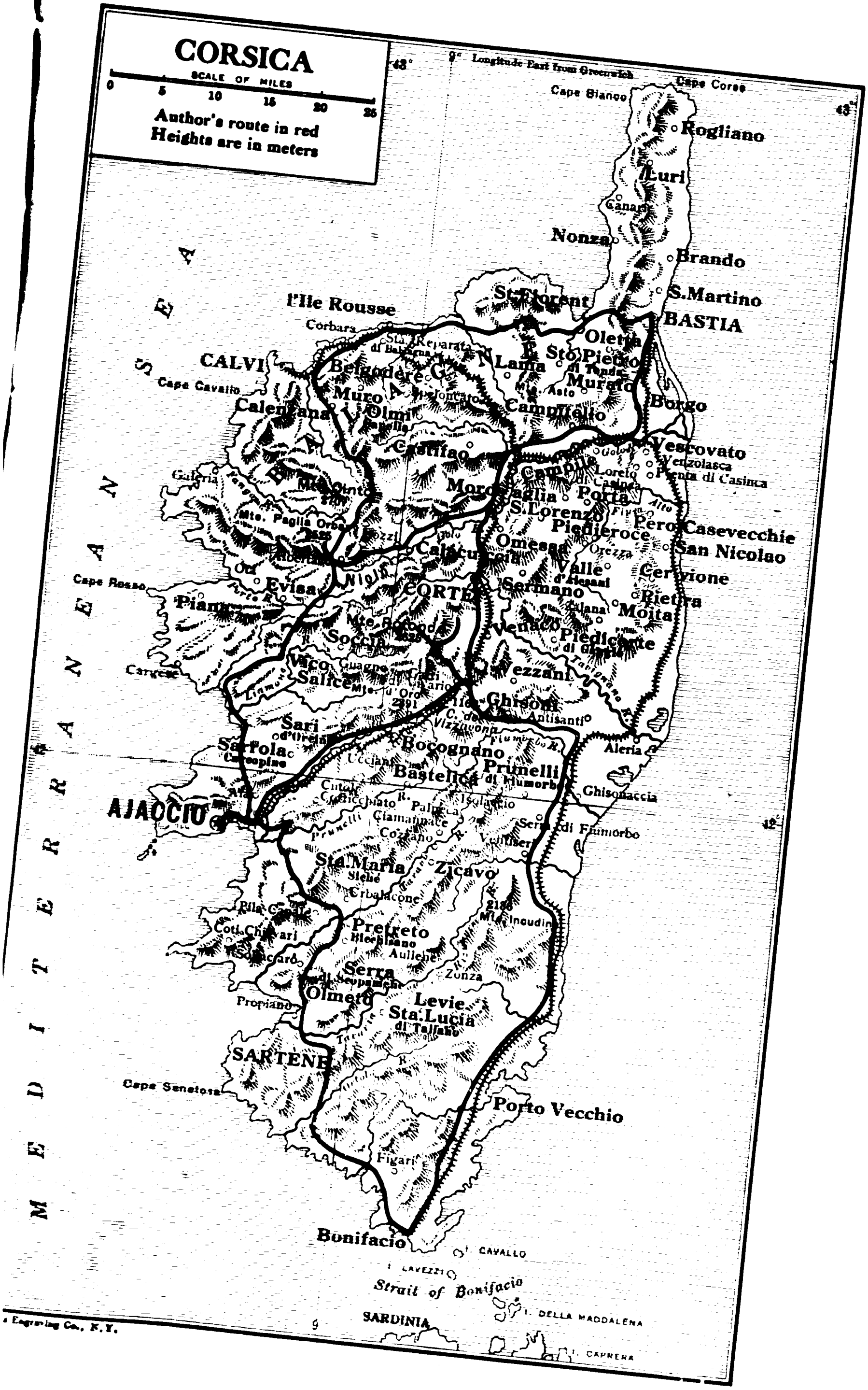
Monsieur did not return the next day, nor the next, and we two roamed among the gorges and hills by day, and Madame S—— played and sang through the evenings. Remember it was May, and I was young:

"Oh! Primavera Gioventu del' Anno, Oh Gioventu primavera della vita."

Can one wonder that I fell in love or that my companion too was affected by the open admiration of an impressionable boy thus brought into her lonely life? But there was something within that kept it a platonic idyll.

I found in Monsieur S—— a very agreeable and highly educated man. He gave me a frankly cordial welcome, and suggested that we should climb Monte d'Oro the next day. Then we sat down at his work table and talked. With a map before us, he explained his routine of work and the broad outlines of forestry. After this, producing a large topographic map of Corsica, he pointed out the important features of the island. After an early supper we had a long talk about America, the *École Polytechnique,* the French School of Forestry, and tales of Corsican life; then Madame S—— sang, and I went off to dream of the romance of this wonderful island.

The next day, because the mountain was draped in clouds, Monsieur S—— took me to see different interesting points. We climbed up deep gorges, where torrents foamed and


CORSICA
SCALE OF MILES
0 5 10 15 20 25
Author's route in red
Heights are in meters
Longitude East from Greenwich
Cape Corse
Cape Bianco
Rogliano
Luri
Canari
Nonza
Brando
S.Martino
BASTIA
St Florent
Oletta
l'Ile Rousse
Corbara
CALVI
Cape Cavallo
Calenzana
Belgodere
Muro
Olmi
Lama
Murato
Borgo
Campitello
Vescovato
Venzolasca
Penta di Casinca
Castifao
Galeria
Campile
Porta
Loreto di Casinca
S.Lorenzo
Piedieroce
Pero
Casevecchie
San Nicolao
Mte. Paglia Orba
Evisa
Niolo
Calacuccia
CORTE
Omessa
Valle d'Alesani
Sermano
Cervione
Pietra
Moita
Cape Rosso
Piana
Cargese
Soccia
Vico
Salice
Mte. Rotondo
Venaco
Piedicorte di Gaggio
Vezzani
Ghisoni
Antisanti
Aleria
Mte. d'Oro
Vizzavona
Sari d'Orcino
Sarrola Carcopino
Bocognano
Bastelica
Prunelli di Fiumorbo
Ghisonaccia
AJACCIO
Cauro
Zicavo
Serra di Fiumorbo
Sta.Maria Siché
Urbalacone
Mte. Incudine
Pila Canale
Coti Chiavari
Petreto Bicchisano
Aullene
Serra di Scopamène
Zonza
Olmeto
Propriano
Levie
Sta.Lucia di Tallano
SARTENE
Cape Senetosa
Porto Vecchio
Figari
Bonifacio
I. CAVALLO
I. LAVEZZI
Strait of Bonifacio
SARDINIA
I. DELLA MADDALENA
I. CAPRERA
MEDITERRANEAN SEA
Engraving Co., N.Y.

roared, now jumping from rock to rock by the edge of the stream, now climbing to walk among the tall larches along the top of a cliff high above a roaring cataract. To my delight I found that I had entered an entirely new field of interest. My geological experience had hitherto been limited to fossiliferous strata and volcanic rocks: for in Switzerland my attention had been confined to the grandeur of the scenery, to the outlines of mountain structure, and to the glaciers. Here, on the other hand, I realized that I stood in the heart of a mountain range. What attracted me at first was the fact that the rock was everywhere granite, and that, when broken to a fresh fracture, it was a beautiful mass of crystals of feldspar, quartz, mica, and garnets. I knew the rock and the minerals already, but on my seeing them for the first time at their source they assumed a new interest. We got back just before the breaking out of a terrific thunderstorm. Watching the mountain as the clouds passed from the summit, baring the lofty gray peak, we could see that there had been a great fall of hail; this was pouring unmelted in cataracts down all the runs sculptured in the steep declivities; little rills feeding larger ones, and so on till all united to form one grand fall over a high cliff. In a few minutes it was over.

The next day we climbed Monte d'Oro. For some time our way lay among majestic larches and pines; then as it rose more rapidly the trees became smaller, and the growth thinner, and we came out into the region of the *macchi* or low bushes, and from this on to the bare rock and a tough climb to the top, and to a view startling in its grandeur. The whole structure of Corsica, in wonderfully sculptured relief, lay spread out beneath us, around us, and stretching in all directions to the sea. Our outlook was from one of the five lofty peaks that rise, massive monuments, on and far above the sinuous backbone of the island; and that island an emerald set in a sapphire sea. Far in the south lay the Incudine; to the north Monte Rotondo, Baglia Orba and, nearly hidden, Monte Cinto. Northward and southward rugged spurs descend from the range, great ribs of the skeleton; all forest-covered, the green shading off, with the distance, into that indefinable color for which China has one character—*tsing*—"the color of distant Nature."

Our peak, reaching upward into the clouds, was a center of terrific thunderstorms, and on its rocks we saw polished surfaces, which we thought must have been glazed by the heat of lightning. Even while we stood on the top, clouds gathered, shutting us out from the world near and far; again there came a great downfall of hailstones, about the size of peas, but large enough to drive us to the shelter of a rock. After it was over, and we were hurrying down, we found the hail gathering like water in little rills to unite in larger dry watercourses, as we had seen a day or two before from below.

When, at breakfast, I told my friends how much I would rather explore the mountains than return at once to Florence, Monsieur S—— said: "Really you ought at least to see Monte Rotondo and its shepherds, perhaps its bandits too; it wouldn't take long, and I can arrange your route and for guides."

Then he told me about Monte Rotondo, its primitive shepherds, the flocks of wild sheep among its snows, and its gorges cleft into dark depths down its sides. As he told of these, I saw my resolutions to return gradually fade away till they were lost to sight.

Monsieur S—— gave me a letter to a forest guard, on the way to Monte Rotondo, telling him to get donkeys and a guide for me. A man with two donkeys was brought up from the nearest village, and bidding good-by to the friends who had received me so warmly, I left for new sights and sensations. Before leaving, however, I wrote a letter to my mother, explaining my delay and my plan for further absence; this letter was to be handed to the driver of the *diligence*.

For baggage, I had only a cloak, my hammer, and a hairbrush, and tooth brush, both bought at Bastia. I remember little of the journey, except that before evening we came to the modest house of the guard, who was a Corsican. Fortunately he spoke French: for the Corsican dialect differed much from Italian. He and his wife were very hospitable, and prepared a very welcome supper.

When he heard that I wished not only to climb Monte Rotondo, but also to spend several days in exploring it, he said it would be well to go to a village on the way and there get two men whom he knew, as guides, and some provisions.

That night bears a very red letter in the calendar of my life. Being very tired, I slept a deep sleep till long after midnight, when I awoke in agony. My groans brought the guard to my side.

"What is it, *signore?*"

"I am burning, please bring a candle."

"I have one, *signore.*"

"Light it quick!"

"It is lighted, *signore.*"

I was blind; not only was I burning from head to foot, but my eyelids were so swollen that it was hours before I could see. Then I swore an earnest oath that never again would I sleep in a Corsican bed. It was a wise vow, though it led to many discomforts. That bed, too, had seemed so attractive when I first saw it with its clean sheets.

Early in the morning I was at the village, and had engaged two men indicated by the guard. The supplies were a large quantity of hardtack biscuits, coffee, several big gourds of wine, and some bowls and spoons. In my inexperience, I left all the arrangements to the men.

In the meantime I observed my guides with a slight feeling of uneasiness. They were alert and well built, but their shaggy black hair sheltered dark, somber visages and piercing eyes suggesting the savagery of the primitive man. There surged up in my memory the words of the fortune teller of Hanover: "The danger I see is from those with you in strange lands; never let them go behind you." Having heard much of the Corsican bandits, and seen Calabrian criminals of appearance similar to these men, it occurred to me that here, if ever, such a warning might be fitting. But when I began to talk with them about the road, they looked me straight in the eye, and the frankness of their bearing disarmed any suspicions; I felt that they could be trusted. Fortunately they knew a little French, and with this and Italian, we managed to understand each other.

At first our way lay through the great forest of larches and pines, whose trunks, three to six feet in diameter, towered a hundred and twenty or thirty feet above us, the larches in tall spires, the pines with spreading tops. Mingled with these were superb oaks and beeches.

As the valley narrowed to become a deep-cleft gorge, we climbed slowly to the highland by a path along the edge of the precipice, and so narrow that my sensations were divided between trust in the skill of the donkey, and fear of the danger of a misstep. As our route brought us to higher ground, we came at last out of the forest into the open highland, where the mid-declivities of the mountain were covered with a dense growth of low bushes; from some of these the air was filled with a spicy fragrance. Continuing and ever ascending, we wound our way among bare rocks, and suddenly saw in the near distance what seemed to be groups of piled stones. The guides halted and shouted.

Some men, shaggy, wild-looking beings, came out and, welcoming us, led the way through a number of formidable dogs, to their home. This was not to be our place for the night, and after accepting a drink of milk we went on. The path became steeper, the great bare mass of the mountain rose before us, and the noise of a rushing river came up from the depths beside us. Before long we saw smoke and again a group of cairns, and again the guides halted and signaled, and we were welcomed.

The home of these shepherds consisted of several huts with walls of loose stones, perhaps four feet high, and nearly flat roofs of tree trunks.

There were no women or children, the men looked even more shaggy than those at the first encampment, but their welcome had the true ring of hospitality.

The afternoon was drawing to an end, and the sheep were being milked. The shepherd who seemed to be my host led me to a stone at which stood a wooden pail with about two quarts of milk, and beside this some bread freshly made from chestnut flour, and some cheese. "Eat," he said, "it is the best we have; to-morrow we will give you *broccio.*" Being hungry, and fearing to offend by eating from my own provisions, I obeyed, and found the sheep's milk delicious, so too the bread and cheese. After I had finished, there remained perhaps a pint of milk, and I noticed that the pail was set before a dog who soon emptied it.

The sun had set behind the high crest of the range, the shepherds sat in a group, smoking pipes, some silent, others talking with my guides—questioning them, I thought, about the stranger that had cared to climb these rugged heights. When I joined the group, they made a place for me. As I listened, trying to understand something in the half-familiar language, it came to my mind that I had dropped into a stage of society that had come down unchanged from remotest time: for these people were self-sufficient, needing absolutely nothing beyond what their own efforts produced—cheese, milk, and clothing from their goats and sheep, and bread from their own chestnut trees in the valley. They looked quite capable of taking whatever else they might want wherever they found it. And yet their frankly offered hospitality and air of straightforwardness inspired confidence.

In the twilight the group scattered, and the old shepherd who was my host led me into the hut. It contained one room, ten or twelve feet square, with no visible furniture—a few gourds and some dried meat hanging under the roof; in the center a small fire on the earthen floor. In vain my eyes searched the obscurity for bedding, till the shepherd, pointing to the floor, said:

"This is our bed; *siamo poveri.*" There were possibly eight of us all told, and the others were already stretched out with their feet to the fire, with no covering, and nothing under them but the thickness of their ragged clothes. I did not tarry; the dense smoke, that found no outlet except through the low door, blinded my eyes with an intense irritation; so like the others I threw myself outstretched upon the bare ground, thanking my stars that I had at least a cloak. Once down, I found the air tolerably free from smoke. Once more the host spoke: "*Dormite bene,*" and all was silent. In spite of my fatigue I lay long awake. The novelty of the life, the wild surroundings, the hardness of the ground, brought varied sensations; and I was conscious of trouble brewing within, which soon developed into a severe pain. No one had warned me of the chestnut bread which had seemed so innocent and sweet. Then too the absence of a pillow was intolerable, as well as what smoke remained near the ground. At last there came the happy thought to get my saddle for a head rest, and I went out into the night. There was Nature, Nature sublime, awful, silent. The still low-hanging moon cast a weird light over the far-stretching scene, and bathed the giant pyramid of the mountain with a silvery brilliance; the towering mass of rock seemed nearer than by day; its snowy top shone white, and all the sculpturing of the varied surface stood out in clear relief of light and shade.

After again getting my feet near the smoldering embers, and the saddle arranged for a pillow, I slept till, with the dawn, the life of the camp began.

Thus ended my first night with Nature and primitive man. I looked eagerly forward to more.

My host had promised to give me *broccio* for breakfast; I wondered what it could be. When at last it came, I saw a neat basket-bowl filled with a snowy-white substance lying on leaves. It looked something like our cottage cheese, but it was a dish for the gods. It was made in some way by curdling the fresh, sweet milk of sheep. I had again a pail of milk, which with the unused remnant was handed to a dog, and I suspected would be used again unwashed.

It was my ambition to climb to the mountain top, and to be there before sunrise. The shepherds told me that it was too early in the season, and moreover, it would not be practicable to camp on the top: it would be better to make an early start, and make the whole trip up and back by day. After much discussion it appeared that we might camp below the summit, near a little lake: so after breakfast with my two men and one of the shepherds we started on foot. Each of the men had a bag of food slung over his shoulders; I carried my cloak and the hammer. The day was perfect, the sun brilliant in a clear sky, and the mountain air invigorating in the freshness of the morning. We had to climb for several hours over foothills, till, coming around a corner, we looked out upon a great amphitheater scooped out of the whole side of the mountain. At its foot, far below us, lay a little lake of sapphire blue ensconced in a green, grassy meadow. A field of snow covered the rest of the amphitheater, sweeping downward from below the summit, in ever-gentling curve, to spread out at the bottom near the lake.

I did not know till later that such amphitheaters were the gathering points of the high mountain snows out of which are developed glaciers.

We had climbed leisurely, for there was much to interest one. I looked for a place to sit and eat, and found it in a broad opening among enormous rocks. The men had brought rude axes, or hatchets, and each had gathered some sticks on the way, and water was trickling near at hand; so enough fire was lighted to serve for making coffee. Hard-tack broken into a bowl of coffee, cheese, and smoke-dried mutton made a good luncheon.

This place being sheltered from the wind, and more or less from rain, seemed a good one from which to make the early start for the top; so we set about smoothing the ground as well as possible, and then took a long, and to me welcome, *siesta*.

In the late afternoon I wandered out, breaking rocks with my hammer, till, tiring of the monotony of finding only a uniform granite, I found my way over the softened crust to a rock that jutted out of the snow. The sunset was near. On each side, out of the snow, rose towering walls of massive rock, framing a vista stretching out over snow and lake from meadow to forest-covered valley, and on, on, through this to the far blue sea. Here on a gigantic scale Nature had wrought and blended all the elements of her greatness into a harmonious whole, from the majestic mountain to the placid sea. The sun sank behind the crest, the twilight darkened, at the end of the vista the moon rose out of the sea, and climbed the heavens, and still I sat unconscious of all but this scene in the eternal drama.

In the exaltation of mind, in the great silence of the heights, something of the infinite seemed to enter my soul, clearing mental vision, and carrying me out of the present and out of myself. The problems of life fell, in all their pettiness, into their proper place in the scheme of endless time and space.

I understood then why Moses and Buddha sought inspiration on the mountain heights, why Jehovah forbade worship in high places, and why the American Indian must, on coming to manhood, live for days and nights on the mountain in communion with the Great Spirit; for only in the vast silences of Nature in her grandest moods, can the soul become attuned to the harmony of the Cosmos, and think great thoughts.

There have been other times when I have dwelt alone in the silence of lofty mountain heights, impelled thither by the certainty of finding a clearer perspective among life's problems.

The chill of the night air that descended over the snowfield turned my thought campward. A smooth crust had formed on the snow, but not yet too hard to be broken by stamping with the heel; still I had a somewhat dangerous walk to rejoin the men. After a supper like the luncheon, we sought out the smoothest places, and lay down. The ground was rough, and only the fatigue brought by incessant shifting to find ease for shoulder or hip, at last made sleep possible.

In the early morning the climb to the top was, as I remember, quite difficult. The light of the moon made it possible for the shepherd to choose the best way though we often had to cut foothold in the hardened snow or ice, but we reached a spot a little below the top just before the break of day.

Here we waited till the first signals of dawn appeared in the eastern sky. As I remember it, the sky was clear, but from below was rising a mist which partly hid the horizon as the sun rose after we stood on the summit. What I remember of the first moments, is standing against the jagged pinnacle that formed the very top and, looking out to the west, seeing a gigantic reproduction of myself—my shadow cast by the sun upon the cloud of mist. I had heard of the "Spectre of the Brocken" in the Hartz Mountains; here I was the ghost of Monte Rotondo.

As the sun climbed higher it dispelled the mist and revealed a wonderful panorama. Looking downward and outward, the eye traveled over barren, ragged peaks and connecting crests and dark lakelets. Northward and southward, peaks almost rivaling the one on which we stood arose as monuments along the range. Great spurs stretched obliquely out from the crest, inclosing the valleys of the eastern streams. On the western side, where the range lies nearer the sea, we looked down into deep abysses in which torrents rush to the coast.

In every direction, except where Sardinia rises in the south, lies the encircling sea. And beyond this, France and Italy from the *Chaine des Maures* in southern France around to Rome; and, behind it all, the Maritime and Ligurian Alps, and the blue Apennines. As I looked, it came over me that on this central mountain peak still dwelt men in the Homeric stage of culture, separated by only a hundred miles of sea from the very arena in which was enacted perhaps most of the evolution of European civilization,—the struggles of rising and falling empires—and that they contributed through one of themselves, to the last scene of tragic conquest and empire building—and destroying.

On the way down we made a detour to visit the little lake. I remember it as nestling in a grassy meadow, its calm surface reflecting the field of snow descending between the rocky walls of the amphitheater. Best of all, I remember the swarms of mountain trout that darted out at every step along its edge. Of these we caught a large supply which gave a welcome addition to the evening meal.

The whole mountain region of which Monte Rotondo is the culminating center, is a wild mass of high crests and peaks in whose upper depressions snow remains till midsummer, and often, throughout the year.

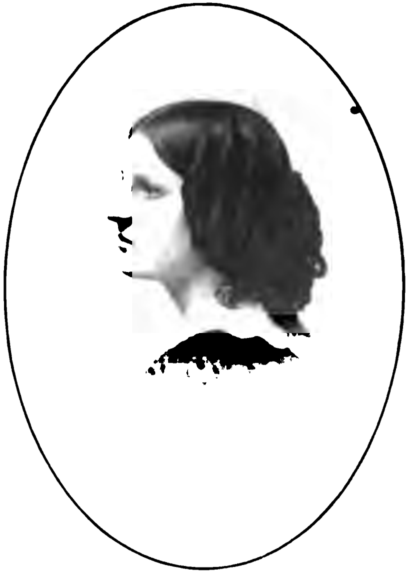
I don't remember how long I stayed in this part of the island, but it must have been several weeks. On foot with my men and a shepherd from this *bergerie,* I made excursions in every direction—along the main crest and the summits of the spurs, and climbing high peaks or descending into wild gorges. And I made at least one more climb to the top of Monte Rotondo.

Usually we took food for several days' absence, consisting of jerked mutton, cheese, coffee, and hardtack for me, and chestnut bread for the men. At night we slept in whatever shelter we could find among the rocks, by a spring or stream of delicious mountain water. Sometimes we could gather material for a good fire, and were protected from rains; sometimes, though not often, we had a wetting to the skin. At times we camped by one or other of the two little lakes at the foot of Rotondo, and caught mountain trout; or striking farther away, we did the same at other lakelets. Sometimes when we were far from our *bergerie,* I sent a man to buy a sheep from some shepherd camp. The next day was passed in preparing meat. In killing the animal the whole carcass was saved. The meat was cut into strips and hung on sticks over a fire made with the wood of a very resinous bush that covers large areas on the flanks of the mountains. In this way the meat was smoke-dried. Sausages were made by filling some of the intestines with the blood, liver, and fat. Nothing but the other intestines was wasted.

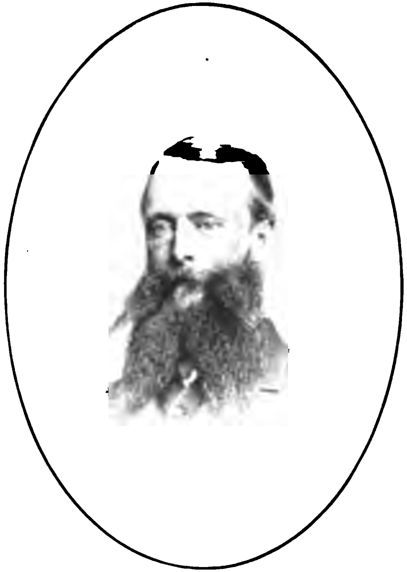
We usually made camp for two or three days, and, like savages, got our fill and new strength for the rough tramping.

It was the life of the outlaw of the vendetta, excepting only that we were not in hiding, and not on the lookout for an avenging pursuit. It was, for me, a new life, fascinating in its strangeness, in the wild beauty of the mountains and the freedom from forethought as to where we should lie down at night, or of care for conditions of weather.

The chief, untiring pleasure was the adventure, but with this was the interest in the mountain forms and in the rocks. The impression that remains is that the whole region was granitic. I remember that I was particularly interested in the frequent occurrence in the granite of veins of quartz and feldspar, and of larger dikes of different rocks which were quite new to my ignorant eye. These I observed closely, making minute sketches of all details of structure and composition, and collecting small specimens.



Eliza Frances Shepard at Twenty



Raphael Pumpelly at Thirty

CHAPTER VII

IN THE HAUNTS OF OUTLAWS OF THE VENDETTA

In the course of these tramps I soon came to understand the Corsican dialect, and to be able to talk in it with my men, and with the shepherds of the *bergerie*.

I liked these people. Their rather somber faces, under a dark mass of often curly hair, were somber only when at rest, but lighted up in talking. As soon as they came to know me better they gave vent to curiosity about myself, my belongings, my people, and my reasons for doing this thing and that. They were not impulsively communicative about themselves personally, but talked freely about the mountains and their life. While I liked them, I felt that it would be bad to have them not like me, and that they might be dangerous as enemies. However, during my wide experience among these mountaineers, I never had a disagreeable episode. There was this first year, one point on which I soon became aware that they maintained reserve, and that was the vendetta—the subject that was so intimately ingrained in their passionate nature. At first I thought that they feared that I might be a spy of the government, but later I knew that that could not be the reason.

In my excursions we often passed or slept at night in caves under masses of enormous rocks. These were generally coated with smoke and creosote, and, because they were not near pasturage, but always in very hidden places, I was curious to learn their history. After a while my men told me that they had been hiding retreats from the vendetta and from the police.

I will mention here one benefit besides the shelter that these caves gave me. Before I left Paris, Dr. Evans, the dentist of the crowned heads of Europe, had filled two of my molars, and had done it so carelessly, without protecting the nerve, that I had frequent toothaches for a year. Before I came to Corsica the fillings had come out and decay was progressing with the pain. I had been told that creosote relieved toothache, and when I found this oil in drops on the roof of a cave I soaked it into a little ball of paper, and found great relief by prying it into my teeth. Later, while traveling in the island on horseback or on donkeys, by making a cornucopia of brown paper, lighting the open end, and blowing the smoke through a little hole at the small end onto a stone, I got enough of the much prized creosote oil collected to stop the pain. I even managed to do this in the saddle while riding.

The time came when I felt that I must leave my hospitable shepherds if I wanted to see more of the island, and I think that the regret at parting was mutual.

We descended, following the deeply cut valley of the Restonica. Much of the way was along the top of high cliffs; below us was the river leaping down high falls and buried in the rising spray, or roaring in rocky rapids. This lasted till we reached Corté, the village from which I had started on this first wild adventure of my life.

My wish was to climb Mount Baglia Orba. I don't remember what made me choose this particular one of the several peaks I had seen from Monte Rotondo. It may have been the melody of its name, or the rugged outlines that showed above the intervening mountain chain, or it may have been what I had heard of the country I should have to go through on the way.

The route lay due north till we reached the river Golo, and then up this valley to the source of the main tributary of that stream.

We soon entered the Niolo. The region bearing this name is the whole catch-basin of the waters of the Golo. Irregularly oval in outline, it is wholly inclosed by high mountains; the main range of the island, with the majestic peaks of Baglia Orba and Monte Cinto, sweeps in an arc around its western end, while two lofty spurs inclose it on the north and south, to meet below in the east. The torrential streams that descend on every side from these mountain barriers, to form the river Golo, have carved deep valleys, giving a wild and rugged aspect to the region. In the Niolo were enacted many scenes of the vendetta.

I remember, of my route through the Niolo, only the forbidding appearance of the little villages we passed through, with dark houses and narrow lanes. But as we neared the source of the river below Mount Baglia Orba, I was aware that I had come into a kind of geological formation that was new to me. On every side lay enormous fragments of a hard, compact rock with no crystalline texture. Its color of varying shades of brown and red, and a sprinkling of small crystals or grains of limpid quartz in the compact ground mass, at once recalled the red porphyries of which I had collected many polished pieces on the site of the palace of the Cæsars in Rome.

We camped several days near the foot of the peak of Baglia Orba, exploring the crests and valleys. Everywhere the rock was porphyry, in varying red and brown shades. In places it was banded in structure, the many layers sometimes containing big nodules or concretions, with a crescent of quartz in the middle, which so excited my curiosity that I collected specimens of these as well as of the other phases of the rock. Fortunately I had, as on Monte Rotondo, added a local shepherd to my party, and had come provided with bags to hold specimens.

As I remember Baglia Orba, its peak rises as a steep horn with almost vertical sides; at least this is the way I have it sketched in my notebook. The shepherd led me up what he said was the only way. The last stretch of the climb was up what seemed like a chimney, open on one side, carved in the face of the cliff. I assume that it was where a dike or trap or porphyry had had its outer edge eroded by water and frost. We had to work our way, I think at least thirty feet, up this vertical flue, with the remembrance of my climb at West Rock and the uncertainties of descent always in mind.

Here, as from Monte d'Oro, and from Monte Rotondo, there was the wonderful view of the deeply sculptured island, the blue sea, and the coasts of France and Italy.

In these rambles the experiences of my boy-life stood me in good stead; I developed a quick correspondence between brain, eye, and foot, and a perfect and instant decision that enabled me to dash, at a run, down rocky gorges at a speed that made it impossible to stop; each rock touched being only a point from which to spring to the next. My shoes were low-cut, without thick soles, and occasional cuts under the ankles healed quickly after washing in the cold, pure water of the mountain torrent.

In exploring one of the valleys descending from this mountain, I noticed that near the bottom the rocks were worn smooth and almost polished in a way that recalled what I had seen at the foot of a glacier in Switzerland, and that they were grooved, and scratched with lines all running in one direction. The significance of these, their relation to glacial activity, did not occur to me then: it appeared only as a puzzle to be explained, possibly by the grinding of rocks moved in the torrent.

From Baglia Orba we followed the crest northeastward to Monte Cinto, one of the highest of the Corsican peaks.

By this time I had become much interested in the many dikes of rocks intrusive in the formation composing the mountains. I had noticed that they were either varieties of porphyry, some with crystals or grains of quartz, some without quartz; or else of hard, dark rock, sometimes more or less crystalline, sometimes showing no crystalline texture. I collected specimens, and sketched the details of variation in the texture and composition and at the contact. The observation that one dike cut through another, sometimes one of a different rock, led to the idea of difference of age, and I began to study dikes to try to find the relative ages of the different porphyries and black rocks, and later their relation to stratified sedimentary formations nearer to the coast.

We camped below the summit of Monte Cinto, and near the foot of a broad amphitheater covered with snow from high above down to a lakelet of clear, blue water at the bottom. In returning to camp from tramps along the high crest, we found excitement in coasting down on the firm surface of the snow.

There was at least one other great and steep declivity, perhaps 1,000 or 1,500 feet deep, free from snow, and covered with a heavy talus of rock débris in a condition of stable equilibrium. Here we detached large loose rocks from the crest, to let them fall a hundred feet upon the loose mass below. The result never failed to be startling. The impact of the big mass, falling from the heights, set in motion the rocks on which it struck; these destroyed the stability of their neighbors, and this disturbance continued downward for a thousand feet or more below, its influence ever widening, until the whole enormous talus of loose débris was a moving mass of rocks, loudly grinding, and sending up great clouds of dust and thundering echoes from the mountain cliffs.

At another point we came, one day, upon a cave formed among a number of immense rocks fallen from above. It had a small entrance, and was blackened on the inside by the smoke of many fires.

My shepherd guide told me that, only a few years before, this had been the scene of the killing of the last member of one of the terrible gangs of bandits—the Arrighi-Massoni. The story was so dramatic that it made a strong impression on me, and I heard it later from several sources. It is so characteristic of the terrorism that blighted the industry of this beautiful island, that I shall give it in outline from the authentic report of M. Felix Bertrand, *Premier Avocat General a la Cour imperiale de Bastia.*

Two brothers, Pierre Jean and Xavier Massoni, and Mathieu Arrighi, who had been soldiers, were the remnant of a larger band who had long terrorized the district of the Balagna, and had always escaped pursuit. In time they sought refuge in the Niolo where the shepherds were less friendly. Here one day they killed two goats for supper. The owner pretended not to object, but followed the bandits at a distance till he saw them camp at a cave in a remote part of the mountains between Corscia and l'Aquale. Then he hastened to notify the *gendarmes* at Calacuccia, about five hours distant. In the meantime the bandits had roasted their goats, Pierre Jean Massoni went to sleep in a crevice in the rocks, and Xavier and the other lay down in a neighboring cave.

At daybreak two brigades arrive. The *gendarme* Muselli, separating from the others, climbs upon a rock dominating the place, and seeing only the feet of Pierre Jean, in order to be sure, he throws a little stone, then another and a third. Pierre Jean jumps up, yawns, looks around, and seeing Muselli, draws a pisol; but the *gendarme* fires and the bandit rolls over dead.

The sound of the shot, repeated by a succession of echoes, brings three *gendarmes.* While they are hurrying up, a man is seen running off in the gorge below, but as they approach, he jumps behind a rock, fires and kills the *gendarme* Albertini, then fires again and wounds Orsattoni, and starts to run, but falls, hit by a ball from Corteggiani, jumps up again, and disappears among the dense bushes.

The *gendarmes* are in doubt what to do; one bandit is dead, one has escaped; where is the third? They decide to form a cordon around the little valley, and watch. In the morning all is quiet, no noise, no clews. Discouraged, they begin a closer examination of the locality. The little valley is wild, narrow, and covered with brush, and its sides are masses of enormous rocks fallen from above, and clothed with plants that hide the interstices. On a little tongue of land between two rivulets, there rise two great trees. One of the *gendarmes* is hidden in the foliage of one of them, and, on a sign from an officer, the barrel of his gun comes slowly out, and two explosions occur at once; the *gendarme* falls, killed by a shot from the bandit's gun.

All is explained, but it has cost the life of a soldier. The bandit is there, watching and waiting. His cave is on a precipice inaccessible on three sides, and consists of two small apartments communicating by a narrow aperture only passable by climbing. The bandit controls the situation. In case of assault, he can retreat to the inner cave and kill, one by one, the men climbing the passage. He has water and a little bread, and abundant ammunition.

Forty-eight hours pass. At daybreak the sound of a drum announces the coming of a troop. Several companies arrive in the valley, and are distributed over the ground; the *corps de genie* itself has been sent to help exterminate this scourge.

A *gendarme* manages to get into a safe place just below the cave; he calls upon the bandit to surrender, promising him his life; tells him he is surrounded by a circle of iron; that all points are guarded, and there is no chance of escaping through the net. He asks whether he is not Xavier Massoni. This excites the susceptibility of the bandit, who answers that he is only the "little Arrighi" (Mathieu). "But you, who are you, and what are you doing down there under that rock that protects you?"

"I belong to the brigade of Corscia; I'm a Corsican like you, and have my share, too, of courage."

"Yes!" replied the bandit. "Well, since you are so brave, show the top of your helmet, or just a button of your uniform."

During this dialogue, soldiers climb to the platform on top of the cave, and make a hole which they fill with thirty pounds of powder, and light a fuse; there is a terrible explosion, the ground trembles, a mass of rock falls and great stones fly in the air. While all stand watching for the effect, they are greeted by a loud, jeering laugh from the bandit, who appears for a moment in the midst of the smoke.

Night comes. No one knows what is to be done. They cut pines and brush, and tumble them from above to make a pile in front of the cave, and on this they drop burning brush to smoke Arrighi out. It makes a great fire, lighting up the valley and the groups of soldiers, the trees, and the stream in which still lay the body of the *gendarme,* which no one had ventured to approach. To keep every one on the alert, they call from time to time, from post to post: *"Sentinelles, prenez garde a vous."* As soon as the last call has sounded, Arrighi takes it up mockingly, and cries: *"Sentinelles prenez garde a moi."* He jokes with the gendarmes, and even threatens them: "If I escape I will be worse than Theodore (a notoriously cruel bandit). I killed one of you this morning; I will kill the others like wild beasts." Then calling to a *gendarme* from Calacuccia: "As for you, I had you at the point of my gun, and would have killed you while you were eating if I hadn't seen your little boy by your side."

Then they hear the bandit moving rocks to make a barricade in the cave. He keeps awake night and day, he has now neither water nor food. To refresh himself, he digs up wet earth to cool his cheeks.

The fourth day arrives. They tell the bandit of the formidable siege prepared for the morrow. Nothing daunts him: neither thirst, hunger, nor fatigue conquers this nature of iron and steel.

At two hours after midnight, when least expected, he plunges from a height of more than twenty feet, and bounds off like a panther. A hundred guns fire on him at once, but with poor aim; he clears two sentinels, and stops at the third, wounded, and falls among a mass of rocks.

"Surrender to me," cries a *gendarme*.

"Come and take me."

While they are preparing to kill him without sacrificing another *gendarme*, he grows impatient.

"Would you like to aim at the head?" he shouts, and rising, faces the soldiers proudly, then falls riddled with bullets.

We have seen that on the first morning Xavier had escaped. So great was the terror, and powerful the influence, of this man, that although separated from the band, and wounded, he still found men, of Corscia and l'Aquale, who took him on a mule to the grotto on Monte Cinto, and a doctor to treat his wounds. An old shepherd brought him milk and foliage for bedding, and from him, he learned of the death of the other two.

In the meantime, Lieutenant Virgetti with his troop over-ran the Niolo, arrested those who had helped the bandits, intimidated the people, and at last learned where the fugitive was hidden. The grotto was surrounded. The *gendarmes* began to close the small entrance by throwing rocks into it, hoping to bury the man alive, but were stayed by the appearance of the barrel of a gun through a small opening. However, when the soldiers began operations for blowing up the cave, Xavier agreed to give himself up. He came out, throwing away his pistol and discharging his gun into the air, but was killed by a shot from a *gendarme* who had not been notified.

In August I left the region of Monte Cinto and Baglia Orba.

The streams descending to the western coast from this part of the high range, have cut their channels deep into the mountain mass. In the whole distance, of about eleven miles, the fall is between eight and nine thousand feet. Looking from the crest down into the upper tributaries of these valleys, they appear as canyons of great depth, with nearly vertical walls, at whose bottoms there are rushing torrents dashing their way to the sea.

As I intended to descend to the western coast, and make my way to Ajaccio, we followed the crest till we found a trail going thither, and after two or three days of leisurely traveling, the braying of our donkeys told us that we were nearing a village.

Looking back over an intimate acquaintance with donkeys the world over, I maintain that the little one of Corsica could easily carry off the prize for vocal music. He has reduced it to an art—a science, a profession, while his kind elsewhere—whether big or little, erect-eared, Soudanese or flabby-eared, are only amateurs. Silent for weeks in the mountains, he reserves his efforts for sympathetic ears. On the journey, suddenly the scent of donkeydom comes wafted on the air. At once every tail in the train hitches slightly up, every mouth opens and issues a note of happy apprehension. After a few minutes, the tails rise a little higher; also the note. As we approach the village, the intervals grow shorter, the notes longer; we are entering the crowded piazza; it is now that the orchestra rises to its majestic height in a grand and long-sustained climax. I know they are boasting:

"Lo we went forth, lone donkeys, behold! we come now each with another on his back."

At my first experience of this kind I told my men to stop the braying; they each caught hold of a tail and pulled it down; those donkeys went suddenly and sadly silent. Alas! the voice of mine rose more proudly, and the solo, with me on top, made the assembled crowd so happy that after that, before entering a village, I made my men tie heavy stones to the donkeys' tails.

It was already twilight as we came through a narrow street into a little piazza where the natives, and two or three *gendarmes,* were loitering around the rough fountain. It was raining, and the noise of distant thunder gave promise of a bad night. I looked around at the houses, but they only recalled unpleasant memories, so I told my men we would go on till we should find a place to camp where the animals could graze.

"*Bène Signore,*" one said, "I know a place a few miles from here." Without stopping, we passed by the wondering group. The night closed in; the rain grew to a downpour. We had gone a mile or two from the village when out of the darkness there came the loud call: "*Arretez!*" and, by a flash of lightning, I saw two *gendarmes* running up from behind. One of them managed to light a lantern, and holding it up to look at me, "Who are you?" he asked.

"I am a traveler going to Ajaccio."

"Where do you come from?"

"From Monte Cinto."

"You are not a Corsican."

"No, I am an American."

"Why did you not stop for the night in that village, since it is far to another?"

"Because I prefer to *faire bivouac.*"

"*Bien!* I arrest you; come with me."

It began to look serious.

"You are not on duty. You have no *gendarme's* hat," I answered at a venture.

He turned to his companion and took from him the proper covering. Then I ventured again:

"Where is your saber?"

He showed the hilt.

Then remembering my passport, I held it out.

"If you will look at this, you will see that I am an American traveler."

It was a formidable document to be studied in a thunderstorm. The three folio pages had been filled with German, French, and Italian *visés,* and had then been folded and bound in with a booklet whose leaves were now half-filled with more *visés.* The brigadier looked it carefully through, evidently tracing the route of my travels.

"When did you leave Genoa?"

"I have never been in Genoa."

Then he questioned my men, who told him that they had been with me for more than two months and that they had been engaged for me under instructions from the Chief Forester of Corsica. This tallied roughly with my *visé* at Bastia, and the brigadier apologized for having stopped me. Then he explained that he had instructions to look out for an Italian who had been connected with an uprising in Genoa three weeks before; and so he let me go my way, and, much bedraggled, went back to what he doubtless thought more comfortable quarters than I should have for such a night.

After we had ridden slowly for half an hour through a drenching rain, a flash of lightning showed a grassy field with scattered trees and, just beyond and deep below, the sea. It is still vividly before me, that scene of wild grandeur flanked for a second out of the dark unknown. This field was our camping place. The men said we must leave before daybreak, because the trees were chestnuts and the owners would come before daylight from a village farther on to gather the fallen nuts. So turning the donkeys loose to graze, we three threw ourselves down in the deep grass to sleep.

We had only just lain down, when there came a flash and a crash so deafening and blinding that I sprang to my feet in terror, and threw my hammer far from me lest it might attract the lightning. Then I stood fascinated by the mingled terror and mysterious magnificence of the elements at work. Each vivid flash showed the whole outline of the coast, its cliffs and the rugged mountains on one side, and the far-reaching sea on the other. And between these flashes sounded the deafening boom and crash of thunder. Wet through and with only my cloak for bedding and cover, I lay down, and fatigue brought sleep.

The dark was dense when the men waked me. We spread out to advance in a line to find the donkeys, but after we had advanced only a few yards, a flash of lightning showed that we were within a few feet of the brink of the cliff; we saw in that instant the sea hundreds of feet below us, and heard the roar of the breakers dashing against the rocks; only a step from the real unknown, and a fit ending of this adventurous night. The storm was over, but by the light of occasional flashes we got together the donkeys and went our way.

As day broke, we passed peasants on the way to their chestnuts. I had been through many wet nights on the mountains, but none so terrible as this, and had never been so thoroughly drenched; and because it rained intermittently for several days, during which we camped in the open air, my clothes were continuously wet.

Late in the day I neared Ajaccio and the beautiful bay around which it lies. My view extended past the town, and along the indented coastline to Cape Muro, with a background of mountains to the south, and on the other side the boundless blue sea. The red sun was just dipping its oval disk below the horizon. The clear Italian sky, the balmy air, the placid sea, all cast a peaceful charm over land and water, in strong contrast with the savage grandeur of twilight in the mountains.

At Ajaccio I found a comfortable inn and a good dinner. The next day I had the good fortune to make the acquaintance of the young head of the Pozzo di Borgo family. He was perhaps two or three years older than I; and during my stay at Ajaccio, we were together much of the time.

He took me to see the house of the Bonapartes, in which Napoleon I was born. I remember it as being two or three stories high, and roomy, but bare of furniture, and unoccupied. Taking me through it, Pozzo di Borgo opened a door, and entering said:

"In this room Napoleon was born."

Here was the beginning of the drama on whose scenes the curtain fell at Moscow—Waterloo, Vienna, and Sedan.

Pozzo di Borgo told me of much that preceded the birth of Napoleon. The father, Carlo Bonaparte, had voted with Paoli for war with France, against annexation. The French troops were advancing across the island, and the Bonapartes with other principal families had to flee for safety. Letitia —the mother—was expecting the child that was to be Napoleon. They fled to Monte Rotondo and lived there among the shepherds till Corsica had submitted to annexation, then they were allowed to return to their homes; but they had to go by rough ways through the mountains, at times having to wade across dangerous streams. In Letitia Bonaparte's condition, only a woman of strength and courage could have succeeded in preserving the fateful life she carried. On such a delicate thread hung the destinies of nations.

Count Pozzo di Borgo took me also one day to a little arbor, in a garden that must have been attractive in the past, and was the favorite retreat of Cardinal Fesch, Napoleon's uncle.

The Pozzo di Borgo and Bonaparte families were bitter enemies in those times. The grandfather of my friend worked in every way against Napoleon at all the Courts of Europe, especially at St. Petersburg.

MARIANNA POZZO DI BORGO

There is a story of the Pozzo di Borgo family which throws an unusual light on the vendetta.

In 1794, during a carnival feast in the market place, Felix Pozzo di Borgo was killed by Andrea Romanetti, who fled to the mountains. Felix's body was taken to the house of his mother, Marianna. The women raised the *lamento* (dirge). When the body was brought to the cemetery, Marianna ceased weeping, and thought only of revenge: for she was a high-spirited woman of the ancient house of Colonna d'Istria.

She put off her woman's clothes, and dressed as a man. Wrapped in the *pelone,* girdled with the cartridge belt, she put on her head a Phrygian cap, stuck a dagger and pistols in her belt, and seized a double-barreled gun. She put herself at the head of her kinsmen, and restlessly pursued the murderer of her son. Andrea fled from mountain to mountain, from cave to cave, from brush to brush; but Marianna was on his track. One dark night he took refuge in a house, his own, in the village of Marchesaccia. Here he was discovered by a girl of the hostile clan, who gave news of his hiding place. Marianna hastened up, her kinsmen surrounded the house; Romanetti made a valiant stand, but when his ammunition was exhausted, and his enemies had already mounted the roof to break in upon him, he saw he was lost. He then thought only of the salvation of his soul: for he was pious, and feared God.

"Hold!" he cried from the house: "I will surrender, but promise that I may confess myself before I die." Marianna promised him this. So Romanetti surrendered himself into the hands of his enemies. They led him into the village of Teppa, and stopped before the door of the priest. Marianna called the father, and begged him for the love of God to receive Romanetti's confession: for afterwards, he must die. The priest entreated with tears for the life of the unhappy man, but his prayers were in vain. He received the confession, and whilst the murderer of her son was making it to the priest, Marianna knelt and prayed God to have mercy on his soul.

The confession was over. The Pozzo di Borgos now led Romanetti out of the village and bound him to a tree.

They raised their guns—suddenly Marianna rushed up—"Hold!" she cried, "for God's sake hold!" and she ran to the tree, and clasped in her arms the murderer of her son.

"In the name of God," she said, "I forgive him! Though he has rendered me the most afflicted of all mothers, yet ye shall do him no further harm. Rather shoot me than him." So she held him clasped in her arms, and covered him against violence, by her own body.

The men released Romanetti, and let him go free from that hour, and his head was a sacred one to the kin of Pozzo di Borgo, so that no one touched one of his hairs.

THE CORSICAN BRUTUS

Gregorovius tells of another incident that happened near Ajaccio. It is of a tragedy whose terrible pathos throws again a light on the stern moral nature of the Corsican mountaineer. I abbreviate it from Gregorovius's narrative.

During the Genoese rule, two grenadiers of a French-Flemish auxiliary regiment deserted and fled to hide in the mountains of Alata, near Ajaccio, where they claimed the compassion and hospitality of the poor herdsmen.

"Sacred are the rights of hospitality. He who violates them before God and man is, by the time-hallowed usage of our fathers, a Cain."

When spring was come, some officers of the Flemish regiment, hunting on these mountains, came near the hiding place of the two fugitives. The latter, seeing the huntsmen, crouched behind a rock. A young herdsman was pasturing his goats near the spot; M. de Nozieres, colonel of the regiment, went to him and asked him whether there were possibly some fugitive grenadiers hidden in these mountains.

"I do not know," said the herdsman, and seemed embarrassed. M. de Nozieres, made suspicious by his manner, threatened him with immediate imprisonment if he did not tell the truth. Then Joseph was terrified; he said nothing, but pointed tremblingly to the place where the poor deserters were hidden. The officer did not understand him. "Speak!" he thundered at him. Joseph would not speak, but pointed again. The officers hastened to the place. The two grenadiers sprang up and fled, but were overtaken and secured.

M. de Nozieres gave Joseph four bright, golden *louis d'ors* for his information. The young herdsman, on holding the gold pieces in his hand, forgot in a childish rapture, officers, grenadiers, and the whole world besides; for he had never seen pure gold. He ran into his father's cabin, and called together his father, mother, and brothers, and, distracted with joy, showed his treasure.

"How did you come by this gold, my son Joseph?" the old herdsman asked. The son told what had happened. At every word that he spoke, his father's countenance became darker, and his brothers were horrified and when Joseph had finished his story, the father was pale as death.

"Sacred are the rights of hospitality. He who violates them before God and man is, by the time-hallowed usage of our fathers, a Cain."

The old herdsman cast a terrible glance at his son, and went out of the cabin. He called his whole kin together, he laid the whole case before them, and called them to pronounce sentence on his son: for the latter appeared to him to be a traitor, and to have brought shame on his whole clan and nation.

The Court of Kinsmen unanimously pronounced sentence that Joseph deserved death.

"Woe is me and my son!" the old man cried in despair. "Woe to my wife that she bore me this Judas!"

The kinsmen went to Joseph, and led him to a lonely place near the city wall of Ajaccio.

"Wait here," said the old herdsman; "I will go to the commander; I will beg for the life of the two grenadiers. Let their life be life to my son also."

The old man went to M. de Nozieres. He threw himself on his knees and begged for the pardon of the two soldiers. The officer regarded him with astonishsment, at the compassion of a herdsman, who wept so bitterly for two strange soldiers. But he told him that the deserters deserved death, for so it was ordained by the law.

The old man rose and went away weeping.

He came back to the wall where the kinsmen stood with poor Joseph.

"It is in vain," he said. "My son Joseph, thou must die. Die like a brave man, and farewell!"

Poor Joseph wept; but then became tranquil and collected. A priest had been sent for, and received his confession, and gave him spiritual consolation.

It was the very hour when the two deserters were being beaten to death with rods. Poor Joseph placed himself against the wall; the kinsmen aimed well, and Joseph was dead.

Then the old father, weeping bitterly, took the four bright *louis d'ors,* and gave them to the priest, saying to him: "Go to the commander, and say to him: 'Sir, here is your Judas wages back again. We are poor and honest men, and have executed justice upon him who received it from your hand.' "

"Sacred are the rights of hospitality. He who violates them before God and man is by the time-hallowed usage of our fathers, a Cain."

CHAPTER VIII

IN THE SOUTH OF CORSICA

One day while young Pozzo di Borgo and I were riding in the country, I saw some men in a field sticking objects like rolls of paper into the ground. When I asked what this might mean, my companion asked me to dismount and see for myself. When we reached the men, I saw them putting pieces of raw meat into strong cornucopias of paper. They told me that these cones were covered on the inside with bird-lime, which tightly held the meat. They were stuck, points down, loosely into the earth. When a crow plunged his beak into the meat, his head would stick to the paper, and he would pull out the cone covering his head, and blinded, he would fly straight up in the air till he fell exhausted to the earth and died.

On these rides I saw often a savage practice of the natives we passed, who were traveling on donkeys. It was their custom to maintain a raw spot on the withers of the animal in front of the saddle. The rider kept the poor donkey on a trot by pricking the sore with the point of a stiletto.

It soon became known that a foreigner was among them, who was interested in the rocks. At different times several persons came to me asking me to go with them to their land: they were sure that they had found valuable minerals, generally gold. I told them that I was only a student, and probably no better able to judge in such matters than themselves; but when they insisted, I was glad to go with them. The supposed gold was always pyrites of iron, or else yellow mica; the silver was white mica, as I was able to prove to them very easily: for these were minerals that I knew very well.

A man in the town came to ask me to come to his house, where he had found quicksilver. I knew this metal by sight, so I went. Taking a shovel and digging just into the surface of the path in his yard, he showed some globules of quicksilver in the earth. I made him dig at different places, but it occurred only where he tried the path. We traced it in this way, up the slightly ascending path, till I found that the trail of the metal came from under a shed. A trench that I made him dig around this showed no more of the globules. So it seemed probable that it was in some way connected with the shed. The quicksilver had probably been spilt in the building, and found its way into the ground, and followed down the path. The owner of the house said there had never, in his time, been any quicksilver in his place. He accepted my opinion, and invited me into his house, where his wife politely offered me some excellent wine and fruit.

These were my first modest attempts at expert advice; and the refreshments may pass for my first fee.

Here is a curious experience I had in Ajaccio. I had come back to the inn at noon after a long ride; the day had been hot and dusty. After dinner the *maître d'hôtel* brought several bottles of wine and placed them on a table by my side, where I lay on a lounge, asking me to try them during my stay in Ajaccio, for they were of the very best Corsican vintages. I had just begun one of Hauff's Novellen, lent me probably by M. Pozzo di Borgo. The story was *"Eine Nacht in dem Wein Keller von Bremen."* It tells the experience of a man who passed a whole night in that famous cellar, drinking from all the choice wines stored there from the past.

I remember that late in the afternoon I awoke to find the book by my side, the bottles empty on the table, and the half-dozen cigars that I had laid out all smoked, and the stubs properly placed in the ash tray. I remembered then that I had lain down to read; the whole story was in my mind, it came back to me vividly. Then I looked through the book, and found it really so. Yet I had no remembrance of having touched the bottles, nor of lighting the cigars. And strangest of all, I felt perfectly refreshed.

At last I bade good-by to Ajaccio, to its beautiful promenade by the sea, and to the superb trees of the *jardin d'acclimatation;* and to M. Pozzo di Borgo who had been so friendly.

I was bound southward. In Florence I had seen a beautiful rock called *granito orbicolare.* It was hard, crystalline in texture, and largely made up of spheres, an inch or more in diameter, in a ground mass of feldspar and hornblende. These balls, when broken through the middle, showed the same minerals in concentric circles of black and white. I was told that this rock occurred only in Corsica, and there only at one or two points.

Of this journey south from Ajaccio, I do not remember any incidents; there remains only the impression of grand mountain scenery and of heights crowned with ruined castles; and long stretches of wild, rocky scenery, relieved rarely by vineyards and olive groves.

It was a region of fiefs of the old Corsican *seigneurs.* There were few villages. In some of these, inhabited by partisans of opposing nobles, the vendetta became a war dividing the whole population; all houses were fortified, and no man could go abroad without danger of being shot from a loophole. However, all this had ceased a year or two before my time.

Near the town of Sartene, I found the rock that I had come for, and carried away a large specimen.

I have always regretted that I did not keep a journal of my wanderings on this romantic island, especially that I did not write down the stories told me at Sartene, of the fierce vendettas for which that part of the island was famous and of which the following is an example.

The people of the village of Mte. Olmo were once celebrating a religious festival. The priests were already at the altar, and the congregation assembling in the church, while some dallied, chatting outside. Among those were some of the Grimaldi and the Vincenti, whose families had been for generations in unceasing feud. This day being a religious festival, they ventured to look one another in the face.

A question arose as to whether the priests should be obliged to wear the cowl of their order in the procession, or not. "No," said Orso Paolo, of the Vincenti, "they shall not: for such was not the custom in the time of our forefathers."

"Yes," cried Ruggiero, of the Grimaldi, "they shall: for so the observances of religion prescribe."

And so the quarrel about cowls or no cowls extended among the two factions in the churchyard. Suddenly an insult was given. Instantly there arose a cry of rage, and pistols were snatched from their belts. The Grimaldis attacked Orso Paolo, and the latter shot among his assailants. Antonio, the oldest son of Ruggiero, fell, mortally wounded.

The mass was interrupted in the church. Men, women, and children rushed out, and the priests in their mass robes carrying the crucifix. The whole village of Olmo was a turmoil of flyers and pursuers and echoed with cries of rage and gun shots; the Grimaldis were eager to murder Orso Paolo.

Orso had dashed off to gain the bush. But his pursuers, furnished with the wings of revenge, barred his road, and tried to circumvent him. There was no escape possible into the open country; only a single house stood near him on the mountain side, and this was the house of his mortal enemy Ruggiero of the Grimaldi.

Orso darted instantly into his enemy's house and bolted the door. His belt was full of cartridges; there were provisions, so he could hold out for days. The house seemed empty, the inmates having gone to the village, and Ruggiero's wife was there also, busied with the wounded Antonio. Her second son, a child, was left alone and sleeping in the house.

Scarcely had Orso Paolo hidden there and fortified himself, than Ruggiero appeared with all the Grimaldi; but Orso pointed his gun from the window. No one dared approach. They stood enraged, not knowing what to do; Ruggiero was frantic that his mortal enemy had found a place of refuge in his own house.

The frantic band stood there, the tumult swelled every minute by newcomers filling the air with clamor; with this mingled the lamentations of the women who were carrying the wounded Antonio into a kinsman's house.

At the sight of his son, Ruggiero's rage redoubled; he rushed into a neighboring cabin and snatched a firebrand to hurl upon his own roof, so as to burn Orso Paolo with the house that sheltered him.

As he was brandishing the brand in his hand and calling on the others to throw fire upon his roof, his wife threw herself in his way:

"Madman!" she cried, "will you burn your child? Antonio lies on his death bed, yonder sleeps Francesco in his chamber; will you murder your last child?"

"Let it be burned with him!" cried Ruggiero; "let the world be burnt down so that Orso Paolo be only destroyed with it!"

The wife threw herself at her husband's feet, but Ruggiero shook her off and cast the firebrand. It set the house on fire. The flames rose high, and the sparks flew on the wind. The mother had sunk as one lifeless, and been carried to where lay her son Antonio.

But Ruggiero stood before the burning house. The Grimaldi had surrounded it to shoot Orso if he should try to escape. Ruggiero stood before his house, and gazed into the flames, with a grim laugh upon his face, seeing how they crept on to meet, blazing and crackling; and when the beams crashed, he screamed with revenge, and with pangs of pain, for it seemed as though each burning beam fell upon his own heart. Often it was as though a figure was to be seen through the flames; now again he seemed to hear the voice of the child crying in the house. Suddenly the roof fell in with a crash, and smoke and flame went up from the falling ruins to heaven.

Ruggiero, who had stood mute and stiff, leaning forward with his hand stretched out towards the house, and his eye fixed, fell to the earth with a groan. They carried him to the house where his wounded son Antonio was lying. When he came to himself, he had, at first, no knowledge of what had happened, but it dawned upon him quickly, and the glare of his burning home shed the terrible light upon his soul, telling him, to his horror, of the enormity of his deed. For a minute he stood, shut up within himself, as if struck to the very marrow of his bones by the lightning of God's vengeance; then he started up and snatched the dagger from his belt to bury it in his breast. But his wife and friends held his hands and disarmed him.

Meantime the flames had gained the woodwork, Orso Paolo sought for some place of refuge in the house,—any hole to keep him from the fire. He went through all the rooms. In one he heard the weeping and cries of a child. He darted into the room; a young child was weeping, and stretching its hands out to him and calling the name of its mother. Then Orso fancied he heard the evil spirit calling out to him from the flames to murder the dear child, and so chastise his enemy's inhumanity. "Are not even the children of the enemy forfeited to the laws of revenge? Strike Orso, destroy the last hope of the house of Grimaldi!"

Orso bent over the child with a horrible expression of revenge. The glow of the flames poured a purple light, like blood, over him, the child, and the chamber. He bent over the weeping Francesco; then suddenly snatched him up, pressed him to his breast, and kissed him with wild enthusiasm. He then rushed out of the room with the child in his arms, and felt his way through the burning house seeking a protecting spot.

Hardly had the house fallen in when the horns of the Vincenti sounded through the village, arriving to deliver Orso Paolo. The Grimaldi fled to the house where Ruggiero, his wife, and Antonio were now assembled.

A fearful quarter of an hour passed by. Then sounded on the market place of Olmo a loud acclamation, and the cry from a hundred voices of: *"Evviva Orso Paolo!"*

The mother of Antonio rushes to the window; she utters a cry of joy and rushes out of the house, and Ruggiero and the women after her.

Through the shouting crowd advanced Orso Paolo, beaming with joy, holding the child Francesco lovingly in his arms, covered with ashes, blackened with smoke, and with his clothes singed. He had rescued himself under an arch of the stone staircase.

Ruggiero's wife flew to Orso Paolo, cast herself on his breast, and embraced him and her little son with unspeakable joy.

And Ruggiero fell on his knees before his enemy, and, clasping his feet, prayed him and God with sobs for forgiveness.

"Rise my friend Grimaldi," said Orso Paolo: "may God forgive us to-day, as we forgive one another, and let us here, in the presence of the people of Olmo, swear eternal friendship."

Antonio recovered from his wound, and, one evening, in the village of Olmo, the families of the Vincenti and Grimaldi celebrated the feast of their reconciliation, with the clink of wine glasses, salutes from guns, and the music of violins and guitars.

The Corsicans have retained the sturdy virtues of the early stage of society; they have a quick native intelligence, and frank independence of bearing; their determined love of liberty has produced many heroic leaders in the long contests for freedom; they have shown marked constructive ability in constitutional government; their men are honest, and their women chaste; only this constituted virtue of the blood-feud has cursed the land with barrenness, and till recently delayed social evolution.

From Sartene I went to Bonifacio on the southernmost point of the island. The town stands on the top of a high promontory protected by cliffs on all sides, a considerable part actually overhung the sea which had cut in far under it, and left part of the city standing on a shelf. A great crack surrounding this part seemed to threaten sudden destruction. The sea has cut what are said to be wonderful caverns into the soft rock. I stayed only a day or two, and passed my time in collecting fine specimens of fossils from the cretaceous rocks, and shells from the shore.

I remember a week's sojourn further north in the marshes near the coast; I don't know what led me to the deadly *maremma,* but it was probably bugs; for having got the collecting habit for rocks, I had begun to include insects. We camped for a week or ten days in a partially cultivated region that was absolutely abandoned during the malarial season, and we were the only living people there. Our camp was on a narrow road between two small fields, and slightly raised—perhaps ten or fifteen feet—above the not distant marshes and the stagnant water.

I was young but not without some method in the madness of this undertaking. I had read in Murray's guide book, before traveling through the Pontine Marshes on our journey to Rome, the precautions against malaria,—avoid the night air; stay indoors after 4 P.M.; sleep with closed windows; have a fire in your room. We had no rooms, and no protection from the night air.

As the first day began to wane, the full realization of the dread responsibility of bringing my men into danger came over me. They had warned me, but had agreed to follow. We could at least have the fire: so we gathered together all the wood we could get. It lies still on my conscience that in doing this we did some despoiling. I had coffee, brandy, and a supply of cigars, the latter carried for the men. Before dark a fire was made. I made the rule that we should divide night into three watches. I took the first, drinking coffee with brandy, and smoking. Every hour I awakened the men, and made them drink coffee and brandy. This was repeated by the keeper of each watch, who had also to feed the fire.

It was my first experience in smoking and I remember wondering whether malaria wouldn't after all be more pleasant.

This rule was rigidly followed as long as we were in the marshes. During the day we collected insects. They were of all kinds, and we put them into pasteboard boxes I had bought in Ajaccio, without classification, with no other attempt to kill than sticking them through with a pin. I knew nothing about insects, but felt immensely proud of my collection.

I am glad to say that, when some months later the boxes were opened, I found that the spiders had hatched abundant broods of young, and had devoured the whole horrid mass.

One morning we left the deadly region and made our way to visit my friends beneath Mte. d'Oro. Monsieur S—— said it would be only by a miracle if we should escape the fever. He told me that two Frenchmen—a botanist and entomologist, had spent a fortnight collecting not far from where I had been; and that both had come down with the fever, and one had died. However, we did escape, though probably not through the vigils with coffee and brandy, and cigars. Possibly the light of the fire may have helped; but our salvation was probably wholly due to the then unappreciated fact that during the night we were at a slight elevation, and a few hundred feet from stagnant water and its malarial mosquitoes.

On the way to Corté, I made a detour which brought me to the villages where I had engaged my two men.

I noticed several children in and around the house which seemed to be their home. When we were again on the road I asked one of my men:

"Whose children are all those at the priest's house?"

"They are the children of the *padre signore,*" he answered smiling.

"But he surely has no wife?"

"E vero, signore, but it is this way; through the long season of pasturage all the men are in the mountains with the sheep and goats, and only the women and old men and children remain in the village."

"You're a married man yourself Paolo;" I said, "how do you like it?"

Paolo shrugged his shoulders:

"Ah signore, it is only the *Padre,"* he answered, with an emphasis on the words which spoke volumes.

When I reached Corté I paid off my two faithful men. I was sorry to part from them: for, despite my misgiving at the start, they had been most devoted companions. We had been together for months, sharing the same hardships; they had taken interest in my collecting, shouldering the bags under increasing weight; and they had taught me much.

I stayed a few days in Corté, wandering in the neighboring hills and along the banks of the Restonica and Tavignano rivers. The beds of these streams were of rolled cobbles of all the rocks of the mountains upstream.

The window of my room at the inn looked out onto a small piazza. I have a little sketch, which I made from my window, showing one of the erect and well-formed women of Corté ascending what seems to be a bridge over a street to a higher part of the town. She carries on her head a tub, and in one hand a graceful two-handled jar of copper. I always remember the Corsican women of all stations in life, as erect and often good looking, sometimes beautiful. Their bearing was always marked by native grace and dignity.

In the cities continental refinements were beginning to appear. Handkerchiefs were a recent acquisition: so more than once, I saw a lady who, thinking herself not observed, would quickly lift and use the bottom of her skirt for a substitute, thus following the traditional custom.

The delicious Corsican grapes were now ripe, and I think it was these that kept me several days dallying on my way to Italy. Monsieur Parodi had vineyards of which he offered me the run. These I haunted before breakfast, after breakfast, and repeatedly during the day.

Before I parted from Monsieur Parodi he told me that he had always had ambition to own a real Panama hat: he had never been able to find one large enough for him. So I carefully took the measure of his head on a tape, and marked it with his name, intending to send the hat from America. It was several years before I crossed the Atlantic, and then remembering the promise I hunted in vain for the tape. At last I wrote my friend for a new measurement: I wrote twice without getting an answer; he was an old man and very likely had died. One day, after more than a half-century, in looking through a mass of old papers, I found a time-yellowed tape tucked away in the pocket of an old notebook; it bore in faded ink: *"measurement of M. Parodi's* *head.*" My friend was a good man, and is, let us hope, where crowns, and not Panama hats, are worn. It has always been to me, in memory, a real regret that I was prevented from gratifying a life-long and modest ambition of one who had shown me so much kindness.

CHAPTER IX

CHANCE LANDS ME IN FREIBERG

One day early in September, the diligence landed me in Bastia, and I immediately went to the English Consul. He had begun to be anxious about my long absence; we went together to the banker who had advanced me money, and I gave a draft for the amount and took my letter of credit.

I had seen from Bastia the islands of Elba and Monte Cristo, and the Consul had told me of the iron mines on the former, in one of which the ore was lodestone. It seemed to me that it would be good to go there on my way: it was only a few hours' sail. So I hired a fishing boat and set out in the morning. There was a good breeze, and for two or three hours we sped along beautifully. We should soon be there, the fisherman said. Then the wind dropped, and there came a dead calm. The sky was clear, the burning heat of the sun enveloped us; there was no shade under the flapping sail. I sought refuge in the little cabin, but found it still worse.

When time for the noon meal came, the men brought out a dried codfish, and some bread and oranges and a gourd of wine. The codfish was dipped into the sea and laid flat on the deck, and the upper side scraped to clean it; then it was turned over, with the cleaned side on the quite dirty deck, to clean the other side; then it was ready to be eaten raw. This was our dinner. I thought it would do, I should have a good supper on Elba.

We were nearly four days standing still on that spot; ten meals of raw codfish, sour wine and stale bread. The intense heat in the motionless air, after months of life in the cool breezes of the high mountains, was unbearable. During all this time, Elba and Monte Cristo were tantalizingly before me. The first day I decided to visit both islands; by the third I felt that Elba would satisfy my ambition.

However, the early morning of the fourth day brought a breeze which landed us on Elba.

I have always been glad that I made this trip, for although I knew nothing about iron mines, I already had the habit of observing carefully, and I carried away a pretty good idea of the manner of occurrence of the two important varieties of ore—the specular in one part of the island, and the magnetic at Calameta. These were the first mines that I had seen.

I have forgotten in what way I reached Leghorn, but I went at once to the Consulate. The Consul was at his desk as I handed him my passport to get his *visé*. He looked at it and then jumped up and faced me.

"Young man do you know that the police have been looking for you for months throughout Europe?"

I was struck almost dumb, and could only stammer,

"I don't understand what you mean."

"I mean that you went away from your mother for a day, and without sending her any word you have been God knows where for four months. You carried off the family letter of credit, and because the London banker has repeatedly written that he has had no drafts from you, your mother has at last concluded that you are dead. That's what I mean."

The tears came to my eyes, as I told him of the two letters I had written in my first days in Corsica, and of others that I had intrusted to shepherds to send via Bastia to Florence.

"Well they never arrived, and your poor mother is distracted."

There was just time to catch the train for Florence.

In a state of great and remorseful agitation, I rang the bell at the Pension Molini. The maid who opened the door started back with an exclamation. Kind, old Madame Molini, who was near, rushed forward to assure herself that it was really I in my very shabby clothes.

"Your poor mother," she said with tears running down her cheeks, "is in the garden. She sits there all day by herself. She must not see you till I shall have prepared her."

So I waited. It was some time before Madame Molini came back. "You can go now," she said, "I have broken the news gently, there will be no shock."

My dear mother: how well I remember how she put her arms around me and looked at me through tears of joy. Then making me sit by her, she waited for the explanation.

I told her of my letters, and why no drafts had gone to London. She did not upbraid me. She made me stand, and looked me over.

"You have grown since you left. You went away a boy. I think you have come back a man." Then she kissed me.

I had undoubtedly undergone a change. Several months of intimate contact with the mountaineers, sharing their hardships, and learning their attitude towards life, had broadened my horizon and the range of my sympathy. It had also shown me much of human nature stript of the veneer of civilization. I did not till later realize how much I had gained in a branch of education that is rarely opened to men in the molding period of life. I got much, too, from the life amid the grandest moods of Nature, under the stars, or surrounded by lightning and booming thunder; and in the glamour cast by the Mediterranean moon over the heights and depths of mountain and gorge. But I got most of all, perhaps, from the exaltation that, in high places, seems to let down the barriers that confine the range of thought. Then, too, I had learned to observe closely in certain directions, and to try to draw inferences and, however modest this was, it was wholly on my own initiative.

My sister had already left Florence. We, too, left very soon, and after a few days in Milan, went on to join my sister in Venice, where we stayed only a few days, because it seemed important that I should begin studying something, somewhere in Germany.

As the nearest way thither was via Vienna we went by steamer to Triest. The Semmering railway was not yet finished, and we had to drive to Laibach. We stopped on the way to visit the wonderful cave at Adelsberg. It is in the midst of the Karst, an extensive plateau of limestone honeycombed with pits and caverns, whose streams wind their way underground through connecting caves. One of these streams, the river Piuka, flows through the Adelsberger Grotto, through narrow passages and grand chambers all adorned with columns and curtains of stalactite.

We were fortunate in the time of our visit: for the cave was being illuminated for the Chief of the Police of Vienna who kindly asked us to go with him on the trip of several miles underground. Part of our way we were in boats, and part on foot. I took back with me one of the little lizards, or lizard-like creatures that have, through generations in the dark, lost sight through atrophy.

At Vienna we thought it quite time that the question of my education should be seriously considered. A day or two after our arrival there was a notice in the morning paper of the meeting of the *Deutsche Naturforscher Verein,* a society similar in scope to our Association for the Advancement of Science. Reading that the sessions were open to the public, I strolled over to listen. At the entrance men were registering their names. I asked an old gentleman if I, being a foreigner, should register. He asked if I were a naturalist, to which I replied that I was not, but that I was much interested in geology. He told me to enter my name and take a card. Then he made me go in and sit by him. During the rather long interval before the opening of the session, he asked where I had studied geology. I answered that I had had no formal instruction, but an interest in it had led me to learn what I could by observation and collecting among the jurassic strata of Hanover, in the Tertiary basin of Paris, and in the volcanic field around Naples. I said that I had spent several months observing among the porphyries of Corsica. I added that my knowledge was limited to what I had been able to observe, as I knew nothing of mineralogy except the names and appearances of a few minerals.

My notebook was in my pocket, and I showed some of my simple sketches of details, and one in which I had tried to represent in an ideal manner the relative ages of the different dikes of intrusive rocks in Corsica. My new friend seemed much interested, and remarked that it was a good way to begin. After that he asked many questions about my life in Corsica. When the session was about to open, he handed me his card and took mine. He said he was Professor of Geology in the University of Bonn, and he added that he hoped to see me at times during the days of the meeting. His card bore the name of the great Noeggerath.

During the following days Professor Noeggerath showed me much kindness, taking pains to explain many things that were being exhibited at the meeting.

One day I made a lucky find in an antiquity shop. There was a saucer full of worthless shell cameos, but there was, among them, one gem in a white stone—a head of Jupiter Ammon, an antique of the third or fourth century cut in high relief. I bought the lot for a trifle and threw the rest away. The curator of the gems at the palace after keeping it for a day offered me five hundred florins for it, which I did not accept.

Professor Noeggerath was going to make a trip into Styria to see the iron mines of Eisenberg and their geological relations. To my great delight he asked me to go with him. It would mean an absence of about two weeks.

The mines and their geology were very interesting in themselves and immensely so under the guidance of Professor Noeggerath who treated me as if I were a fellow geologist which was naturally very greatly to my profit.

We roomed together, and I was amused to see him kiss all the chambermaids—if they were pretty. He seemed to me to be about seventy years old. He had twenty-five children. They had a story in Bonn that coming home and seeing a small boy on the steps of his house, he asked him whose boy he was, to which came the answer: "Don't you know me, papa?"

Professor Noeggerath advised me to go to the Royal Mining Academy at Freiberg in Saxony. He said the instruction in Geology, Mineralogy, and Chemistry was of the best. After talking it over with my mother I accepted his advice which was already very much to my mind, and it marked a crucial point in my life. For had I not met Professor Noeggerath I should probably have gone to a university. Had I done so, my wish for a wider general education would, with my interest in the past, have probably led me to concentrate on history and ancient literature. In any event the whole trend of my life and all that that means, would have been entirely different. All this was determined by seeing a notice in a newspaper and by a casual question put to a kindly old gentleman. I will paraphrase the Corsican injunction for hospitality and say: Sacred are the obligations of courtesy and kindness to the stranger.

My mother and I left Vienna to go to Dresden, the nearest railway station to Freiberg. It was just a year since the day I had left Vienna before.

This time we traveled in a car of the American type, like our common-day cars, which had just then been introduced. This time, also, I wore an opera (crush) hat, which I took off, to put on a cap. I laid the hat under the seat in front of me, placing it on a flat holder made for such hats, which was already lying there. Time passed without note when the train stopped at Brünn and we were ordered to change cars for Dresden because the train we were in was bound elsewhere. While I was gathering our belongings, my mother attended to my hat, and we entered the other train. When our things had been brought to our rooms, at the hotel in Dresden, and I asked for my hat, my mother pointed to a hat box with a cover broken loose. I opened it; there were two opera hats! My dear mother, knowing that I owned a hat box, but not knowing that I had forgotten to bring it, had hastily lifted the broken top of the box and inserted my hat. We had stolen the covering of some unlucky traveler, at the same point where, as I have told, exactly a year before, a Jew had stolen mine in the darkness of the night.

At Dresden I parted from my dear mother. She had been a comrade in many excursions. Her unbounded faith in me, though not always justified, made for good in me, and her poetic nature and sympathy with my aspirations, tended strongly to develop both the imaginative side in me, and earnestness of purpose.

I remember well her last command, given between tears and kisses:

"My dear boy, whatever your work is to be, aim for the highest in your profession, and for honesty in your conduct through life."

The short journey to Freiberg was by train to Tharandt, and thence by *diligence*. In the *diligence* we were six passengers. A lady was at the door on the back seat, I by the door at the other end; the rest were four men. The man opposite the lady smoked a pipe. Soon the air became so dense with smoke that the lady, with some difficulty, lowered the window; very soon the smoker closed it. After a while she lowered it again, only to have it reclosed by her vis-à-vis. Feeling indignant at such boorishness, I got up and opened the window, but I had hardly sat down when the man pulled it with a jam. I jumped up, but too late; the lady had already smashed the glass; she sat back, quietly acknowledging my approving glance with a smile.

At Freiberg I went to an inn. At dinner I met a tall and strikingly handsome American; he was James D. Hague, and destined to be a life-long friend.

The next day I started out to pay my respects to the different members of the faculty, beginning with Professor Cotta—he had not yet been knighted. I called on him first because he was a geologist.

As I entered the drawing-room, a lady came in by another door. She was my fellow traveler of the *diligence*. We both smiled, she thanked me for standing by her on the journey, and asked me to sit down, as her husband would soon come in. After we had talked for some time, and she had told me much about the place, I felt that I should start with at least one friend in Freiberg.

When Professor Cotta came in, and his wife had introduced me, I told him how I had happened to come to Freiberg to study. I have never forgotten the kindness with which he received me, and the interest he showed in giving the information I needed.

After this I called on all the other professors, meeting everywhere an informally pleasant reception.

Hague and I became friends at once. He went with me to look for rooms. The quarters selected were in the *Burg Strasse,* a good-sized sitting room, facing south on the street, and bedroom adjoining, without window, but only partly partitioned off the larger room. This was to be my home for the three years I was in Freiberg.

Hague, James P. Kimball, and I were, I think, the only students that year from the United States. Looking over the Academy catalogue beginning in 1766, I find that between the years 1819 and 1856 there had been twelve Americans; all but three since 1849.

Among these I note the names of the geologist Eugene Hilgard, the mineralogist George Brush, John Blandy, and W. Kitchell. There had been a great many from Russia, Spain, South America, and Mexico; only three or four from France, and these before 1840, and from Great Britain nineteen since 1792.

Freiberg, 1857

Photograph by the author

CHAPTER X

FREIBERG

Freiberg has been an active mining center certainly since the twelfth century, and probably much longer. On its square, stand houses said to have been built six hundred years ago over old mines. The ground under it, and under its surroundings, is honeycombed with six hundred miles of galleries. A large part of this was done before the use of powder. In my time one could enter galleries whose sides and roofs were hewed with hammer and point to a straight, even surface. Within a radius of a few miles, there were still operating a number of large mines producing silver, copper, lead, and zinc ores. Near the town were extensive works preparing the ores for the local smelting works. These mines were deep, I think one had reached a depth of about 2,000 feet. When I arrived they were accessible only by ladders. Before I left the miners came out on man-engines. These were made by bracketing little steps on the great hewed beams that formed the rods of the Cornish pumps. When one rod went up, the other went down; in the instant of pause you stepped across onto the corresponding step on the other rod, and rose perhaps six feet; and so back and forth holding onto an iron near your head, in the rod. I think this was the first form of man-engine.

I hear now (1913) that the mining industry at Freiberg has come to an end, through exhaustion of ores, it is said. The quaint old town, from which so many memories have been carried to all quarters of the globe,—its Italian renaissance Cathedral, and fourteenth century Rathhaus, will belong to the past; but in the dark recesses beneath, will still be heard the hammers of the gnomes, and there will always wander the ghosts of long generations of miners.

I saw very soon that my previous training in mathematics had been woefully slighted, and that this would be a serious handicap. Something drastic had to be done at once, or I should not be able to take even the courses in surveying and elementary physics. Private lessons would be necessary, and there was no time for these during the day. There came to me the remembrance of how my friend Dunham and I had read Latin every morning, from four o'clock on, in New Haven. So with some difficulty I found a German student who was so desperately in need of money as to be willing to tackle such a job. It seemed easy to me. Perhaps he thought so too. I planned to get up at three, have a cold bath, and be ready at four. That too seemed easy—when I went to bed. The first morning, a continuous succession of loud knockings brought me to the door, and to a realization that it was four o'clock. After this had happened several times, I hired a young man whose business it was to bring my tub of water at three-thirty, pull off my blankets, carry them away, and see to the fire in the big porcelain stove; all this under pain of quick dismissal.

This worked; as a darkey would say, it was "obleeged" to work; the cold water waked me, and coffee kept us both awake. The German was much better as a teacher than I as a pupil. He didn't succeed in making a mathematician of me, but he did, during the nearly three years we kept this up, make it possible for me to follow the courses profitably, though by dint of much reviewing by myself, because I lacked the necessary kind of a memory. We had to work at a too rapid pace.

When Weissbach lectured in Surveying, I found it hard to follow his lightning strokes on the blackboard; fortunately, fast as his hand moved, his brain worked faster, and often got so far ahead that he would run his chalk through a mistake, and calling up a capable student, tell him to do it rightly, continue the demonstration. How I envied the ability of that student who was always ready to make the correction at once.

Weissbach was an excellent teacher, quick, impetuous, often sarcastic. Once, in explaining the instruments, he set up a theodolite, pointed the telescope on an object, looked hastily into it, and called the students one by one to see the cross-hair and focus it. Each one would look and look again, and answer the impatient question: "Well, haven't you focussed it yet?" with a frightened hesitating "ye-es Herr Professor." But when one student resolutely answered "No, Herr Professor," there came the quick exclamation: "Stupid!" Then looking himself, and finding that the cap had all the time been covering the objective, he laughed and said: "It was I, after all, who was the stupid one!"

During the years I was at Freiberg we had abundant practice in surveying on the surface and underground.

Breithaupt was already old; he was, however, one of the fathers of Mineralogy, and an inspiring lecturer. He taught crystallography without mathematics, using wooden models, of which he had one for every possible combination, and for twins. The models were two to three inches in diameter, to be visible to the whole class. He had a long knife blade which he held against the face he was describing. One could never think of the man, the model or the knife separately; they seemed a trinity. He created in his students an interest in crystal forms and systems, that I did not find later in the mathematical treatment under Alvin Weissbach.

There was attached to the Academy, a place for the sale of minerals and fossils, superintended by Herr Wappler, where I got a great deal of practical knowledge of minerals;

for in buying for my collection, I examined a great number before buying one. I must have spent a half-hour there every day.

Breithaupt paid a great deal of attention to paragenesis of minerals, and to pseudomorphs. These interested me very much on the hidden story side, and gave me a special interest in chemistry.

The optical characteristics of crystals gave me also an interest in the study of physics.

It has ever since seemed to me strange that in teaching mineralogy more importance is not attached to paragenesis and pseudomorphs, since both throw much light on geological chemistry.

All this led to much buying and collecting and outlay. I came to be somewhat of an authority on mineralogy among a small group of foreign student friends, and we formed in time a small "conference," meeting once or twice a week at my rooms.

Cotta lectured on ore deposits and on geology, including enough paleontology to cover the fossils characteristic of the different periods. Geological science was still in its youth, and an academic course could cover the whole field and much of the literature. Humboldt von Buch, Cotta, Lyell, Murchison, Elie de Beaumont, d'Orbigny, were ultimate authorities in every branch. Specialization was only beginning.

Cotta took us on frequent excursions in connection with subjects in his lectures. During the years I was in Freiberg, these trips covered not only the neighboring region, but extended to Bohemia and Thuringia, sometimes lasting a week or even longer. In some of these, in the holidays, several of the other professors joined, and the whole became a jovial picnic. These men, old and middle-aged, were quite as good comrades as any of us. Outside of the lecture room they were as young as we were; we liked to mingle with them at the

Raphael Pumpelly at Nineteen Years at Freiberg

restaurant tables, drinking beer, smoking, and telling stories, or in serious talk; and they joined us in the same spirit. I hold this to have been an important element, in education. It is a phase that seems to be lacking in our universities, and is only partially represented in our conferences on special subjects. Professor Shaler of Harvard was the only American instructor I can recall who was a representative of the type of these men in this respect. Bless them and him: for they are remembered with affection and gratitude.

I remember one excursion in my second year, which Cotta and a fellow student—von Andrian—and I made for two weeks in Thuringia. The scenery and historical associations were most interesting, the inns and the beer and wines were good. Andrian and I were helping Cotta in work on the geology of the region.

One evening during a talk on paleontology Andrian had said: "There are so many contradictory determinations of species that it seems as though paleontologists often made them *nach dem Gefühl.*"

Now, *Gefühl* may mean either feeling, touch, state of mind, or sentiment. Both of my companions spoke English. The discussion at once lost its seriousness. Cotta said: "It is true that *das Gefühl* in some of its senses may influence the paleontologist; it enters into most decisions, even in a wager; for instance, I wager you can't swallow two eggs on an empty stomach; that is an instance where the decision rests only on *Gefühl.*"

Von Andrian said at once: "I can't take that bet because I *feel* it is impossible."

"What is the wager?" I asked.

"Suppose we make it a bottle of champagne," they both answered.

"Good," I responded, "I *feel* that I can do it, so I take the bet."

"Order the bottle," said Cotta, "for you have lost through your *state of mind.*"

"But why?"

"Because when you have swallowed the first egg your stomach is no longer empty."

"But suppose I take both down at one swallow."

They said that would be impossible, but they would let it be decided by experiment.

"That's your *sentiment,*" I answered, "order the eggs."

I had my doubts as to success. I broke the eggs into a glass, and mixed them thoroughly; then, under close, and somewhat embarrassing observation, with a successful gulp, I got those two potential chicks simultaneously into my stomach. I had won.

"Now," I said, "I used *Gefühl* in all its senses. I liked eggs; that was *feeling.* I was hungry; that was a *state of mind.* I knew how they would feel in slipping down my throat; that was *touch.* But the decision was based on experiment, and therefore on induction. Order the bottle!"

They confessed that it had all been planned beforehand to get me to take the bet.

The champagne went down more pleasantly, though, than the eggs.

On this excursion we visited a wonderfully interesting cave. The rooms were small, as I remember them, but the walls and roof were covered with a mass of great crystals of gypsum instead of stalactites. No torches had blackened them with smoke. As large as one's arm, and several feet long, transparent, white with pearly luster and silken texture, these glistening crystals projected out from the intertwined groundmass far into the open, and formed a scene of dreamlike beauty.

One day, I think it was near Ilmenau, I had the good luck to find several specimens of crystals showing an unrecorded law of twinning. They were pseudomorphs after a feldspar. I gave them later to Professor Breithaupt, who published them, giving me credit. I imagine that this was the first time my name had appeared in print, except perhaps when I was lost in Corsica and being looked for through Europe.

At the end of the excursion, as we were walking to the station, in Eisenach I think, and in tramp-worn clothes, we saw two ladies ahead of us. One of them had dropped a handkerchief. Andrian picked it up and, as we passed them, raising his hat, politely handed it to one of the ladies. We heard one of them say: "Ach! how very polite for a common laborer!"

After we were out of hearing, Andrian laughed and said: "Those ladies are the Duchesse Hélène, daughter of Louis Phillipe, and her daughter. I used to see her when as a boy I was a page at the French Court." Andrian was an Austrian baron.

Cotta's "*Lehre der Erzlagerstaetten*" was one of the earliest attempts, if not the first, to classify the various forms of ore deposits, as far as then known. It was based on careful study, especially of occurrences in Germany, and on descriptions in the mining literature of foreign countries. The hypothesis presented in connection with the relation of the ore bodies, and their associated secondary minerals, to the rocks in which they occur, was elementary in comparison with the results of later study based on trained observation, over a vastly greater field, throughout the world; and on progress in geological chemistry and experiment in the laboratory. Still, in its very simplicity, it had the fascination that attaches to a new department of science opening a wide range of problems to be solved.

As such it incited me to close observation of details underground, and on the dumps, a habit I had already begun to form in my primitive way in Corsica.

In these years, at Freiberg, I had begun to feel that the larger characteristics of structure and composition of mountain masses and ore deposits could often be found repeated on a small scale in small specimens. This led me ever after to pay attention to paragenesis of mineral associations, and to pseudomorphs and minute details of structure.

Reich lectured on Physics, but we had practically no laboratory work, as far as I remember. My chief interest here was in optics as related to polarization and to crystallography.

Under Professor Fritsche we had Assaying, but almost wholly by fire. The wet methods were not taught, and were indeed only in their beginnings elsewhere. We were, however, thoroughly drilled in fire assaying, even to very minute points in manipulation; indeed one of these still adheres to me in daily use. In sprinkling reagents onto the molten mass, in an assay vessel, it was required that the handle of the spoon be held between the thumb and second finger, to be gently tapped with the forefinger; this I still do, unconsciously at table, in sprinkling salt or sugar.

We were drilled carefully by Richter in blowpipe assaying, both qualitative and quantitative, and as extended to mineral determination.

On mining we had, under Gaetschmann, through two years, two-hour lectures. They were anything but inspiring. Whole series of lectures were given up to illustration of unimportant details of construction of the simplest instruments; several long lectures each, to shovels; number, shape, and position of nails or rivets; the forms and material of handles, etc.; to hammers, and "points," and drills. In the use of fire, sometimes they still used to break up the rock in underhand stoping. Emphasis was laid on the material used, and the method of building it up on the surface to be burned; and many hours went in describing various ways of preparing the small kindling sticks with a knife in such a manner that they would be masses of shavings attached to the parent sticks.

Of this long series of lectures on mining proper there remained, to me at least, only the impression of a vast amount of unimportant detail in which was swamped whatever there remained of the larger essentials of exploitation.

Metallurgy was taught well, though the course of Metallurgy of Iron by Scheerer was not established till too late for me to take it.

It would have been of greater use to the prospective miner in wild regions, if some of the lectures on mining and metallurgy had been taken from Pliny's and Agricola's descriptions of primitive methods.

We were free to spend a great deal of time underground, though I do not remember that there were any courses of practical instruction in doing actual work. As far as I can remember, my experience was largely confined to observation of the methods of working, to the manner of occurrence of the ores, and to vein structure.

I enjoyed taking rests with the miners; they were hard-working simple men, and glad to talk, and to share with me my luncheon, or to offer me from their own. Meat or eggs were rare luxuries with them. I remember that once when I gave an old miner a cigar, he put it into his pocket; and when I asked why he didn't smoke it, he answered with epicurean philosophy:

"Oh no! I get the good from your smoke now; if I should smoke this cigar at the same time, it would be like putting eggs on buttered bread." I had difficulty in making him smoke an extra one with me, so wasteful did it seem.

In the first year we had to descend nearly 2,000 feet on almost vertical ladders and, what was harder of course, to climb out by the same route. To protect the head from objects dropped from persons climbing above us, we wore stiff caps of very thick felt.

Sometimes we had visitors from afar who wanted to see the mines; and we made it a point that they really saw the mines, and in a way to fix them indelibly on the memory. We took them to the bottom, and then up and down winzes, and through miles of levels, and through a level into another mine, and to the surface after several hours of visit and after nearly two miles of ladder work.

Whistler, then a young man, but the great artist later, was one of those, outwardly, thankful visitors. Another was an American who had been a merchant for many years in Manila. He was the tallest man I had ever seen. He strained our credulity by many stiff stories about the Philippines. I remember one of these stories was that in Manila they kept numerous boa constrictors, domesticated in the houses, to catch mice and rats and such beasts of prey as might find entrance. They kept them, he said, till they got to be twelve or fifteen feet long, before killing them.

The mechanical preparation of ores was well represented, because of the many varieties from the different mines; it offered perhaps the best field for practical study.

We had chemistry under Scheerer and his assistant Winckler. The small laboratory was so crowded, that, in the second year of my stay, a few of us hired some rooms and equipped them. An advanced German student acted as teacher. We used this place as a supplementary laboratory for drilling in qualitative analysis.

I felt myself handicapped in such of the courses as required mathematics. The education of the German students had been more advanced when they left the preparatory schools, than that of the graduates of American colleges at that time, and I had not even fully prepared for Yale. It was a disadvantage that I never wholly overcame in later life. When interesting problems suggested themselves in research, requiring mathematics, if they needed knowledge of an advanced order, I would have to either abandon the further research, or call in expert aid.

In later years it was my good fortune to have assistants who were not only highly educated, but who had the rare ability of being able to grasp multiple hypotheses sympathetically, and generously to carry the ideas to fruition.

Von Andrian left in 1857, entered the Austrian Geological Survey and became later an archæologist. Adolf Schmidt became, in 1871, my assistant on the Geological Survey of Missouri, and later held for long a chair in Geology at Heidelberg.

Kamienski had a tragic history. He came to Freiberg less to study than to be not too far from a young Russian princess, with whom he was deeply in love, and who was living with her mother in a not distant city. The mother favored the engagement, but because Kamienski's father—a general in the French army—was exiled from Poland, and because the young lady was heiress to a great Russian estate, the Czar, as her guardian, forbade the marriage. When Kamienski found his suit hopeless, he enlisted in his father's regiment, in the Italian campaign of 1859 against Austria. He went hoping to lose his life. In the first charge at Magenta he so distinguished himself that Napoleon sent for him on the field, and gave him a ring from his finger. Kamienski then returned to the front and was killed. I saw his name, with the above statement in the French papers, among the "illustrious dead of the year 1859."

Caceres became one of the leading statesmen of South America.

Fudakowski had also a tragic career. He took part in the Polish rebellion of 1864.

Through the months of February and March, 1865, on my sleigh journey through Siberia, I passed many thousands of exiles from this rebellion. They were scattered in herds, forlorn masses of men and women, tramping in a temperature of 50° to 70° F. below zero along the three thousand miles of route to Irkutsk. I learned afterwards that Fudakowski was among those that passed by me.

CHAPTER XI

FREIBERG, *Continued*

THERE was an American student, of German descent, who supplied the community with some serio-comic excitement. He was a remarkable marksman with the pistol. His room was in the rear of the house he lived in, and there were two large courtyards between his windows and the opposite houses. It amused him to pick out, with balls from his pistol, the panes of glass in the windows of one of these houses. One day, seeing a woman hanging out a wash to dry, he fired and cut the clothes-line. The woman, frightened and bewildered at the sight of the clothes on the ground, hesitated, but bravely set to work and restored the line, only to have it broken again at her side; then she fled.

The neighbors, in the rear, watched while this practising continued several days, and at last succeeded in locating the culprit. He was arrested and tried. The case was so out of the order of events in the staid German community, that the court room was crowded. We all went there, but I remember only one incident. The prisoner, who took the whole proceeding as a joke, sat, with his legs crossed, in a chair at the edge of a raised platform near his advocate, who was arguing in defense. When the lawyer, producing his strongest plea, said: "It must be remembered that this gentleman comes from a land where even the principal cities, New York and Boston, are surrounded by savage Indians, and where every man and woman is obliged to carry firearms in self-defense. It is quite natural, where all become unerringly skilful, like this young gentleman, that the use of firearms is thought proper in practical jokes."

At this point the defendant, who was sitting with his chair tilted, burst out with laughter, lost his balance, and went over backward off the dais onto the floor. He got off with a fine.

He was withal lovable and popular. He was also once generous—with some of my belongings—in a way that came near ending in a tragedy. As I returned to my rooms one day he came in and we began to talk. Suddenly he said: "What could that young seamstress on the upper floor want with arsenic? She met me just now on the stairs, and asked where she could get some arsenic. I remembered seeing a quantity of it in your collection, so I brought her in and told her to help herself."

Followed by him, I rushed up the stairs, found her room, and entered. The girl, for she was not over twenty years old, stood crushing the white crystals on a table with a toothbrush. As soon as she saw us she swept up a handful and swallowed it.

There was a brass student lamp on the table. I emptied the rapeseed oil, green with verdigris, into a tumbler, and together we forced her to swallow it. Then I sent the daughter of the house for a physician, and my friend to our private laboratory for tartar-emetic. Both arrived quickly.

I said to the doctor:

"This girl has just swallowed a handful of arsenic, and we have forced down a tumblerful of lamp oil, and here is tartar-emetic."

He was a pompous man; he looked at us with suspicion, and said: "This is a criminal matter; I must go for the police."

"No! save her first, and notify the police later: you can't leave this room now!" I said, with my back to the door.

I don't remember that he even used the emetic; the oil had done the work, and she was saved.

I heard afterwards that she wanted to die because her soldier-lover had left her.

During my first year, there came to Freiberg a young Russian, who hired a room next to mine. He came to study metallurgy, but he found it more interesting, if less profitable, to coquette with *Fortuna* at some green-covered tables in Dresden. M——'s absences grew longer and longer, until he had been away several weeks. One day as I was looking from my window I saw him come rapidly down the street and disappear around a corner; then there appeared a policeman coming at a fast walk from the same direction, and he, too, vanished at the same corner. I recognized a connection between the occurrences when the two came together to the house.

M—— told me that he was in arrest for money borrowed to pay gambling debts. His creditors were Jews in Dresden.

M—— went to the Freiberg jail. At his trial he was sentenced to two years each for eight notes of two thousand thalers each, or sixteen years in all, failing payment of principal and interest!

The court room was crowded, not by students alone; and the judgment aroused a sentiment of indignation: for M—— protested that he had received in all not two thousand thalers.

Ladies of Freiberg sent to the jail things to make his stay more comfortable. Because he was an accomplished musician, we rented a good piano for him, and he settled down to his long confinement.

We reasoned that the Jews had counted on payment by his family, and that when this hope failed, they would tire of paying for his maintenance. After some months it became clear that his family would not or could not pay. Then a group of us had the Jews sounded. At last, they agreed to accept two thousand thalers. Then we went in a body to M——'s cell. We told him we had raised the money to free him. We made one condition; he must swear, by the Bible and by his mother, that he would never gamble again. M—— grasped our hands, his face radiant with joy and gratitude; but he quickly sank back into a chair, and, under the influence of struggling emotions, buried his face in his hands. "Oh, I can't do it!" he said in tears. "It is too late; I know that I haven't the strength to resist."

M—— remained many months in arrest. His father was a member of the Imperial Council in Russia, and the Czar instructed an official he was sending to study German educational methods, to obtain M——'s release, which he did on payment of fifteen hundred thalers.

We formed a club with quarters over the inn. I don't know whether the present "Anglo-American Club" is its lineal descendant; if it is, I hope it is conducted on less frivolous lines. We discussed serious problems; but late hours were often spent in practical demonstrations of the theory of probabilities, on a green table instead of on a blackboard.

There was a very pleasant society at Freiberg; indeed there were two organized circles. One included the families of the faculty and of the principal burghers. The meetings of this one were frequent, at regular intervals. The rooms were very large, with an excellent floor for dancing, which was the chief occupation of the young people. There were cards for those of the older ones who preferred not to dance. These balls began at half-past eight, and lasted till five or six, with an interim of an hour at midnight for a hearty German supper. The dancing began with a promenade, in which old and young all joined. After that all the dances of the period; waltzes, *galops*, polkas, polka mazurkas, mazurkas, schottisches, cotillons. For the last there were favors, some of which were most extraordinary; I remember a favorite one representing a Russian peasant who, when wound up, lifted a gold coin to his mouth, swallowed it and emitted it—I will leave the manner to the imagination.

All the students of the Academy were welcome, and expected, guests. As a rule the ladies danced with grace, and the roomy, polished floors permitted a delightful *élan* of movement in *galop* and polka, and in the Polish figure dances.

At these dances, but only there, we wore the regulation dress form of the miner's costume.

The other social circle was called the Assemblée, or was it the Casino? It was small, compared with the one just described, and consisted of the nobility of Freiberg and the surrounding region, and the army officers who were of the same social standing. They had a large ballroom over the inn.

Kamienski, von Andrian, James Hague, and I, and I think one or two other foreigners, were always invited. Some of the faculty and the ladies of their families, and some of the young ladies of the burgher class were also guests.

These balls also lasted from before nine till near five in the morning. The officers with their brilliant uniforms and rattling spurs, added greatly to the effect in the figure dances. The evenings were very agreeable, though not quite as frankly jolly as those of the other circle; the ladies showed slightly more reserve. Nearly all of them were of noble families; some were very attractive.

There was still another more intimate circle. At the head of all the mining industries of Saxony, including the Royal Mining Academy, was the Oberberghauptmann, Baron von Beust. The baroness, his wife, was both beautiful and fond of society. The lancers was a new dance just invented; new also were the enormous crinoline skirts. Madame von Beust invited together enough young friends to make two sets for the lancers. She had a teacher from Dresden. We met in the afternoon, often while we were learning, and once a week later, during my stay in Freiberg; and we generally stayed for supper. As Madame von Beust was a charming hostess, and as all became closely acquainted with each other, these occasions were naturally delightfully informal.

After we had thoroughly mastered the intricacies of the lancers, we mixed in other dances. It took much practising for a lady to learn to make the salutation in the lancers of that time. She had to bend her knees till one of them came to within an inch of the floor; if that knee once touched the polished floor its owner could not rise without help. The enormous width of the crinoline skirt made the assistance of two men necessary, and even then it was difficult.

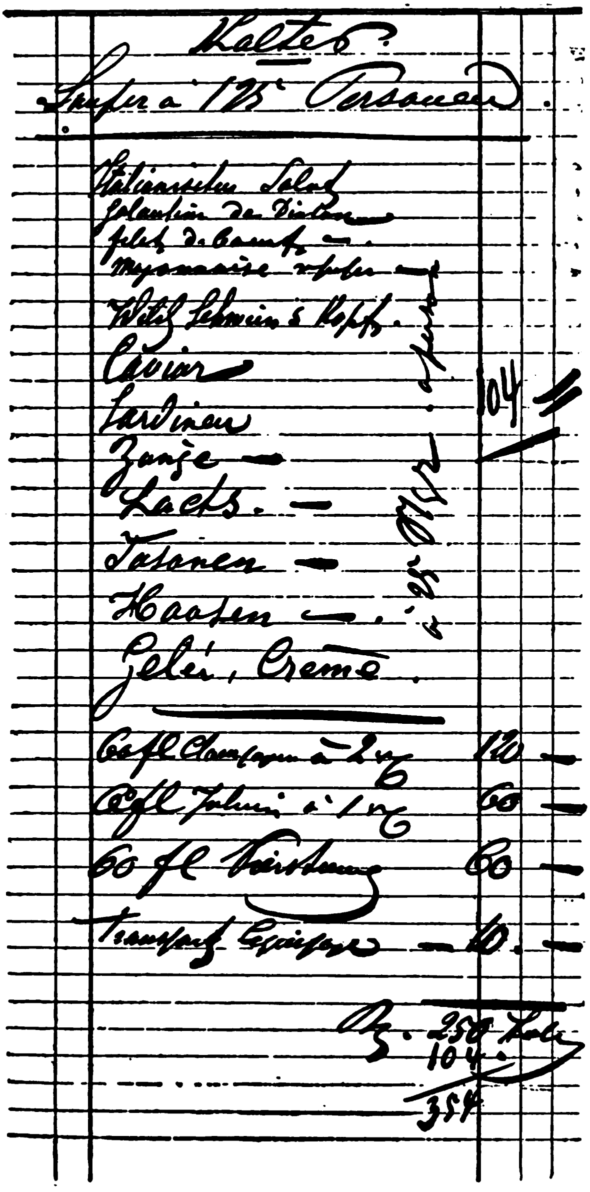
In pleasant weather, of spring or autumn, we drove several miles to one or another attractively placed inn for a picnic dance.

There was still another circle and it was at the social antipodes. It was called the *Christel Schwof. Schwof,* is, I believe, slang for dance, and it was *"Christel" Schwof* because the ladies were the maidservants, and *"Christel"* was the diminutive of Christina, a very common name among that class. Students were not particularly desired guests at these dances; they generally went armed with their housekeys which, from their length of about eight inches, were good for defense. I found that one visit satisfied my curiosity.

When, according to the season, the various dances I have mentioned ended with daylight, Hague and I went home and put on our mine clothes, and walked out to spend the forenoon at the bottom of the deep mine.

Each year such of us foreigners as had been invited to the circles, gave a ball in return. I remember that the ladies of the Assemblée always stipulated that the rooms should be lighted only with candles. They said gas was bad for the throat, which was true, but perhaps that was only one reason.

Here is a copy of the menu, which is also the bill, for the supper at one of our balls:



Kaltes:

Souper à 175 Personen

Italienischen Salat Galantin de Dinton Filet de Boeuf Mayonnaise v. Fischen Westf. Schwein's Kopf Caviar Sardinen Zunge Lachs Fasanen Haasen Gelée, Creme	à [illegible] à Person	104
60 fl Champagne à 2 rth		120 —
60 fl Julien à 1 rth		60 —
60 fl [illegible]		60 —
Transport Equipage		10. —

Sa. 250 Thaler
104.
354

A number of the foreign students joined yearly in giving a supper to the professors. These were very jolly. Our guests, though they were among the most eminent men in their subjects in Germany, became boys with the rest of us. I remember one supper, that lasted till daylight, in which an enormous amount of wine was disposed of. At one end of the table sat Breithaupt, with Hague on his right; I sat on his left. In the small hours of the morning, Breithaupt remarked that he should soon retire, as he was growing old. He wore a scandalously evident brown wig. Hague said maliciously: "Ach Herr Professor! you are still far from old; your hair is not even gray." The dear old man quickly, with both hands, lifted high the wig, shouting:

"Nein meine Herren! this is not my hair; it is a wig!"

At the end of the supper, we all joined hands, students alternating with professors, and danced to a bacchanalian song, around the table. Then, to our credit as hosts, I am able to say that we gave much needed aid in escorting our elderly guests, in the light of the breaking day, to their homes.

After my neighbor M—— had removed to board at the cost of his Hebrew creditors, his rooms were taken by the newly arrived brothers Henry and Louis Janin. They were hospitably received by the young man I kept to relieve me of my warm coverings in the dark hours of the morning. While waiting for their baggage, he very kindly offered them my brush and comb and—toothbrush! This broke the ice, and the Janins became my life-long friends.

CHAPTER XII

ANOTHER SUMMER IN THE MOUNTAINS OF CORSICA

I WISHED to spend the vacation of the summer of 1857 in the mountains of Corsica, making the journey via Paris. I wanted to study the geology of the island, in the light of knowledge I had obtained during the past year. I had, too, a longing for the wild life, and for adventure.

I had seen many mouflons and deer, and these added to the temptation: for they were not allowed to be shot.

A few years before my visit, the French Government, in its attempts to stop the vendetta, had forbidden the use, or even the possession, of firearms. The only exceptions were the soldiers and *gendarmerie*, and Prince Pierre Bonaparte who lived there in exile. For every one else, the penalty was the galleys.

I had noticed that some of the shepherds had guns, but no ammunition. So I managed to smuggle in as much powder and lead as I dared to carry, trusting to finding bullet-molds among my friends. Fortunately my examination at the Customs in Bastia was confined to questioning as to whether I had spirits or tobacco. Fortunately, too, I found the men who had been my guides in the previous year, and who were glad to go with me.

I passed a few days with my friend the Chief Forester and his wife, at a little village not far from their home of the previous year. Then I turned northward to explore in the region east of the mountains.

A month or more, I think, was spent in this part of the island.

I remember little of the beginning of the trip excepting a general impression of the geological interest I found in my first acquaintance with the occurrence of serpentines and asbestos. In reading Gregorovius' narrative, I recall the fact that I stopped a day or two at the village of Oletta, and heard the pathetic story of which I shall give a brief account from his recital. I remember being shown the piazza and church where the scenes were enacted.

While Paoli was fighting to prevent annexation to France, the little village of Oletta, in the Nebbio, was garrisoned by French troops. One day a young native, Giulio Saliceti, left the village without permission, and on his return was arrested and imprisoned, but was soon released.

When Giulio neared the house of his kinsman—a priest called Peverino (pepper), from his passionate nature—a sergeant, hearing him mutter a curse on the French, struck him on the face. Peverino saw the insult. When Giulio rushed into the house, they planned revenge.

In the night other kinsmen came to the house, and they decided to avenge the insult and at the same time rid themselves of the enemy. The troops occupied a church near by.

The conspirators dug a tunnel from the house to beneath the church, and made there a mine which they filled with powder. The natives were strictly warned to be away on the night of the explosion.

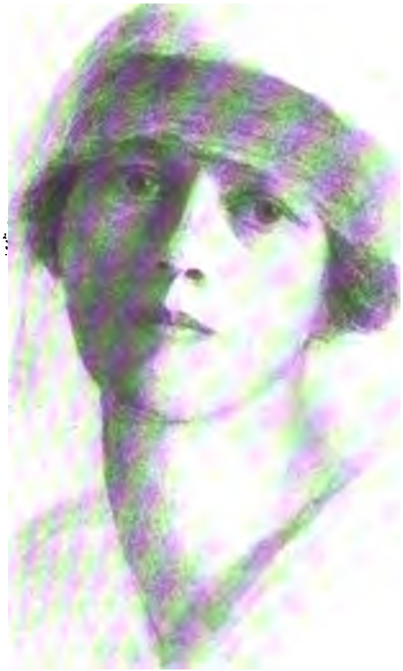
Their plan was betrayed, and fourteen of those arrested were condemned to death on the wheel; seven were actually so killed. Seven corpses were publicly exposed on the open square; no interment was to be granted, and it was ordered that no one should remove a body, under pain of death.

One of the dead was the lover of Maria Gentili Montalti. In the first night, in her grief, she felt that her lover was calling on her. She decided to sacrifice herself in the attempt to give him burial.

She was an only child, and she passed through the room of her sleeping parents, torn by the struggle between her affection for them and her duty to her lover Bernardo.

In the darkness of the stormy night, dressed in black, and unnoticed by the guard, she took the body of her lover on her shoulder and bore it to the Church of St. Francis. There she sat down exhausted on the steps of an altar to the Virgin. The body of her dead lover lay on her knees like that of Christ in the *pietá*.

Letting the body glide down on the steps of the altar, she found



Margarita Pumpelly Smyth

From a drawing by herself

and opened the tomb of the fathers of Bernardo; then she kissed him and let his body down into the tomb. Maria prayed long for her lover's soul, and then went back to her home.

When at daybreak it was found that the corpse was missing, all the members of Bernardo's family were arrested and condemned to death, although they denied any knowledge of the deed.

Maria Gentili heard what had happened. Without saying anything she hurried to Count de Vaux, the Commander in Chief, who had come to Oletta, and threw herself at his feet. She confessed her deed and prayed for the release of the prisoners.

"I have buried my lover; my life is forfeit—here is my head, but leave in freedom those who suffer innocently."

At first the Count would not believe either in the heroism or the strength of the girl. When he was convinced, he was deeply affected. "Go generous girl," he said, "go and thyself release thy bridegroom's kinsmen, and may God reward thy heroism!"

On the same day they gave Christian burial to the other six bodies.

I think it was at Oletta that I made my first acquaintance with truffles. At breakfast a large dish of these was served. I was enjoying them very much when the landlord, who was standing behind me, suddenly and excitedly seized the dish and took out what seemed to me a fine truffle; then, after examining the rest and returning them, he said that the piece he had taken was a very poisonous fungus.

He told me that truffles abounded in the region, and that they grow among the roots of oak and chestnut trees. They gathered them by following pigs, who are fond of the fungus.

After having spent some weeks in travel near the northwestern coast, a trip which is almost a blank in my memory, I turned to revisit the high mountains. It was for this that I had really come.

In a *bergerie* where I was welcomed as an acquaintance of the previous year, I found that they had some antiquated guns. The eyes of the shepherds opened, with alternate delight and hesitation, at the sight of the small store of gunpowder and lead that I showed them. They hunted up molds and we made bullets.

Above us towered a lofty mountain, with large fields of snow on its upper northern side. Below us was a deep gorge, with precipitous sides, but which, nearer to the sea, opened out into a still narrow but wooded valley.

Above us were flocks of mouflons. The valley below abounded in deer.

We climbed the mountain and after much search saw a troop of mouflons grazing below the snow. They were, however, out of range, and the wind was in the wrong direction. We made a descent and a long detour to get into a better position. After much climbing and creeping we caught glimpses of them almost within range; then, just as we were ready to fire, we heard a sound between a cry and a whistle, and saw the whole troop scamper away. The men pointed out a solitary mouflon standing on a distant eminence; this one they said was a sentinel, and that one was always placed to watch.

The shepherds proposed a *battue* for deer in the valley below us. About seven or eight miles down the valley it was crossed by the road along the coast. The plan was to send men down to near the road, to drive the deer up the valley to where it narrowed into a canyon. Here we should be able to intercept the game. Near the road were two high points from which any one moving on the road could be seen. To each of these points a man was sent to pile materials for a fire, to make a column of smoke in case of danger. A lookout was placed above our position to watch for the signal.

After waiting a long time, several of the small Corsican deer came running towards us. We were three, with guns, and all of us fired. The deer stopped, whirled about, and, before we could reload, disappeared up the gentler slopes of the valley below the gorge.

At the same time came a shout of warning from the lookout above, who had seen a smoke signal. We hastened back to the *bergerie,* where the shepherds lost no time in carefully hiding their guns among the rocks.

Soon the men who had driven the game came in, followed later by the sentinels, who reported having seen two *gendarmes* moving on the road.

The next day one of my guides told me that I had not done wisely to bring ammunition among these people. Only its absence prevented fatal results in quarrels.

That night I wandered away from the *bergerie,* and scattered my powder to the winds, and buried the lead.

Thus ended my plan for hunting mouflon and deer. It had, however, been an experience. It dawned on me also that geologizing and hunting such watchful game were not entirely congruous.

My chief reason for visiting the mountains was to study the porphyries, as well as some phenomena I had seen the year before, which, after reading Agassiz's work on the Swiss glaciers, I now thought might be traces of extinct glacial activity.

It was in the valleys in the Niolo below Mount Baglia Orba, that I found what I felt sure were traces of glacial action. Here at the foot of Baglia Orba, in the Viro valley, one of the tributaries of the river Golo, the unweathered surfaces of the hard porphyries were rounded off, grooved and striated in a manner to be explained only by the action of moving ice. Below this the river had deepened its channel along the edge of a moraine which filled the valley to a height of 100 feet above the rushing waters. The moraine consisted of porphyries of varieties not only from the immediately bordering hills, but of great blocks of kinds found only on different points of the range from Monte Tafonato, and Baglia to Capo Uccello. Still further down the valley, a mass of morainal matter extended across the valley like an end-moraine.

We almost always slept under the stars wherever nightfall or fatigue suggested a halt. Sometimes we claimed the hospitality of the shepherds. I remember one cold night in the hut of a *bergerie.* The smoke was suffocating, and the flees more attentive than usual. Several times that night I went out into the frosty moonlight and stripped. Each garment was turned inside out, shaken, and thrown to a distance, till I stood naked; then I scooped the flees off from my skin, and, jumping to where lay my clothes, dressed and returned to gather a fresh crop.

CHAPTER XIII

THE MOUFLON STORY

September was far advanced, and the nights were growing cold on the crest of the range. There came a night when I awoke to find myself being covered with snow. I had only the cloak that had served, the previous year, for clothing and for bedding. There was no shelter near at hand: so I resigned myself to the inevitable. The snow was dry; I covered my face with my broad-brimmed hat, hoping that enough snow would fall to keep me warm; it did—until a morning wind drifted it away. We made a stationary camp in a cave near a *bergerie.*

Here I made a memorable acquaintance who was destined to bring me into many embarrassing situations. One of the shepherds had a mouflon. The animal had been captured soon after birth. He had been nursed by a ewe, and had grown up among successive generations of tame sheep. He had been treated with uniform kindness, as a pet, and was thoroughly tame. But he was a ram, and was probably the oldest one in the flock. He was big. So also were his horns. To the bucking ability of the tame rams, he added the skill of countless generations of wild ancestors. He inspired respect not only in the other rams, but in the dogs and the men.

I bought him. I did this in a moment of youthful inexperience, and of enthusiastic anticipation of the admiration to be aroused on his introduction to European and American civilization.

While I camped by the *bergerie,* I cultivated in my mouflon an inspiring interest, if not affection, toward myself, by dint of much petting, but more effectively by liberal feeding. The good things in my pockets were a source of unending attraction. So, in time, I could not escape from him except by tying him up. If I hid myself, he would trace me out, apparently by scent. He came like a dog when I whistled.

I was pleased. The German students went around glorying in their dogs; I foresaw the spectacular effect of a mouflon trotting by my side.

The mouflon is one of the several varieties of wild sheep that live near the snow line on the high mountains of Asia, Africa, and America. He nearly resembles the bighorn of the Rocky Mountains. He stands between twenty-six and twenty-eight inches high, with horns curved in a rather flat spiral. The body is covered with a silky hair, which hides the wool underneath. His close relationship to the domestic sheep is shown, according to Buffon, by the fact that he can produce with it a fertile cross.

The mouflons move in troops, and live and bring forth their young on the snow, descending, during the day, below the snow line to graze. In very severe winters, when the pasturage is wholly covered they come into the villages among the sheep for food.

When taken soon after birth, they are tame, and, if uniformly well-treated, remain tolerably docile, but can be very fiercely aggressive with their heavy horns. In climbing they are more agile than goats and can jump horizontally eighteen or twenty feet.

Their cousin, the *Ovis Poli,* on the Pamirs and Himalayas is much larger, with horns extending far outward in a pointed spiral. My son Raphael saw, on the Pamir, one skull with horns spreading nearly five feet across from point to point.

The time had come for me to return to Freiberg. Again I was to leave behind me the care-free life of the mountain heights, the nights under the starlit heavens; the majesty of the mountains illuminated in the awful silence of the moonlit night. No more should I be startled from sleep by the echoing crash of thunder and the blaze of lightning. All these had made part of my life, adding mystery to the romance. Those months had been full of adventure, and I felt that they had been educationally profitable. I had carried through a systematic study of the varied porphyries of a large region, and had correlated the dikes of different rocks in their relation to the formations they traversed. And I felt a youthful pride in having discovered traces of glaciers at a point farther south than before known.

I may add that when, a year later, I showed to the eminent French geologist, Cordier, my illustrations of the correlation of the dikes, he pleased me by asking if he might publish it, if I did not intend to make use of it myself.

With some difficulty, I don't remember how, I succeeded in getting my mouflon and my rocks to the main highway, where I hired transportation to Bastia.

I went aboard the Leghorn steamer. I tied the mouflon at the side of the deck, and went below to the noon meal just as the boat started, but hearing a great noise on the deck over me, I rushed up. The mouflon had preferred his native land and started for it. He was towing at the length of his rope in the sea. The engine was stopped and with everybody's help, he was lifted aboard and tied up short. He seemed resigned, but kept inquisitive interviewers at a respectful distance.

I meant to go to Florence for a few days: so on arriving at Leghorn I asked a sailor where I could find a place to board the animal.

"My mother, *Signore,* would take good care of him," he answered.

So, getting into a carriage with the mouflon, we drove till we came to a large apartment house, where we climbed to an upper floor and I was introduced to a very respectable looking woman.

I told her my mission. She looked at the animal doubtfully; and he hopefully at her. She gave him a piece of bread from the table by her side, and he let her pet him.

"*E carino!*" (he's a dear) she said. "Yes, I will take good care of him."

"But where can you keep him, have you a yard?" I asked.

She led me into the hall and opened a door.

"Look *Signore;* here will I keep him."

I looked into a room about twelve feet square. It was a kitchen, very neat, with an Italian cooking range. A whole *batterie* of copper cooking vessels hung on the wall; and there were shelves with crockery, and, under these, numerous receptacles for foodstuffs. She was probably a caterer.

When I objected, she insisted:

"Have no fear," she said; "don't I promise you that you shall find him all right when you come? Ah! he is *so* gentle!"

So, after tying the mouflon in the kitchen, I went on my way with a light heart. Traveling had become easy.

After perhaps a week in Florence, I returned to Leghorn, and drove to get the mouflon. As I left the carriage, I saw the old woman just coming out of the house. As soon as she saw me, she began to talk and gesticulate excitedly. Evidently something was wrong with my sheep.

I hurried up the stairs, the woman following. The kitchen door was locked; she gave me the key. There was noise within. I opened the door. The mouflon stood between the legs of an inverted table. I saw his feet come together; I dodged; he cleared the door, doubled up the woman, and bounded down the stairway.

The kitchen was a wreck. Battered coppers and broken crockery covered the floor. The food had all been looted.

He had a way of getting my knots untied, I thought it mysterious, till at sixty I discovered that I had never known how to tie a square knot.

The woman was bruised; she was also not in good humor; but she had an eye to business, and she managed the business skilfully. I got away with what I thought might take me to Venice.

I took the boat to Genoa, and drove at once to the station and bought tickets to Venice, one for myself and one for the mouflon. A train was soon to start, and I asked the guard where he would put the mouflon.

"In the dog kennel, *Signore,*" he answered, pointing to a little door under the baggage-car. He called four porters and opened the door. The men lifted the struggling animal, and started to put him in head first. They twisted his head sideways to get his horns in. I protested; so did the mouflon. Then they turned him end for end, and managed to push him in till they got him as far as his horns. Then in despair they dropped him on the platform.

Then that mouflon took his innings. Quickly those four uniformed servants of the Sardinian kingdom lay doubled up on the floor. The air was blue with groans and impressive statements. The victor was proud; I was disturbed, the guard and the conductor, who came up, were haughty. That animal couldn't go on the train. He was a wild beast, and they didn't carry wild beasts.

I showed his ticket.

They answered that he could go only if inclosed in a strong cage. There was no other way, so I went to a hotel and had a carpenter brought. I told the man to measure the animal and make a strong cage for him. I waited in Genoa two or three days for the cage. When it came, I saw that it was strong. It was also very heavy. You paid for baggage by the pound.

In due time, after about twenty hours, I reached Venice in the morning, and went to a hotel. I was hungry, but after a cup of coffee and an egg, I hastened to a bank to draw money. I handed out my letter of credit, saying I wished to draw twenty pounds. The banker glanced at the letter and said:

"I'm sorry; I shall have to forward your draft to London for acceptance."

"Why must you do that?" I answered. "It isn't customary."

"We have instructions not to pay directly, except on drafts drawn on the Barings, and your letter is not from them. This applies to all others, on account of the panic in America."

The great panic of 1857! I had not heard of it; indeed, I had not come in contact with American travelers.

He said it would take about two weeks for him to get authority from London.

The banker added that, as I was going to Vienna, where the house of Baron Escales was mentioned among correspondents on my letter, I might doubtless fare better.

After a hasty count, I thought I had perhaps enough money to take me to Vienna.

I hurried to the hotel and paid for my coffee and egg; then I bought transportation to Trieste. The passenger steamer was already gone, and I boarded an old Austrian freight steamer. The cheaper cost had attracted a rough-looking lot of passengers. I settled down for a delightful trip of a few hours.

We started with a fresh breeze. As we progressed, the wind grew rapidly stronger, and the sea rougher. Everybody and I thought of the comfort in Venice. The captain looked at the glass and ordered all to go down into the cabin. I looked down at the mass of seasick humans, and refused to follow.

The captain insisted, and when I wouldn't go down, he said I might stay on deck at my own risk, but I must sit on a bench and be lashed to the stays. By the time I was securely tied, every gangway was battened tight, and we were tossing in a frightful gale. It was the *Karst*—the nearest thing to a hurricane that ever occurs on European waters.

All that day, and all night, that blessed boat tossed in a howling wind that whistled shrill through the rigging; she plunged, rolled, and kicked. The seas dashed over the deck. Only my ropes held me. I was so drenched and bruised and seasick that I forgot to be afraid.

Towards morning the wind abated; we were in the lee of the Dalmatian coast, but we had to wait hours before it would be wise to enter the harbor of Trieste.

The captain loosened my lashings, and grinned a sardonic grin. *"Spero che a dormito bene!"* (I hope you've slept well.)

I had been for twenty-four hours storing up ideas about that boat; it was pleasant to unload them on the captain.

As soon as we landed I drove to the station. The Semmering railway had been finished through to Trieste. I had just enough money to pay to Vienna, third-class, for myself, my mouflon, and my rocks. Indeed, I had one copper coin left over. It was Neapolitan, and worthless in Austria.

The morning train had left, and there was to be no other till evening, a slow one—and that twenty-three hours to Vienna!

I was hungry. My stomach retained only memories of an economical meal at Genoa, and of a cup of good coffee and an egg at Venice; and I was thirsty; but I had no money, and I knew no one in Trieste.

So I wandered all that long day through the city, resting wherever I found public seats. Fortunately I had a half-dozen Corsican cigars; for I had learned to smoke in those nights in the marshes of the *Maremma.*

Toward train time, I paced the station platform. The mouflon smelt longingly at my empty pockets. I had one cigar left, and cutting it, I gave him the larger part; he chewed it greedily and looked in vain for more.

At last we started. The train rolled slowly on through the long night. At times it stopped for refreshments, and I walked on the platform. I looked through the door of the *buffets.* How good the great strings of *Vienna Wurst* looked, and how I envied the greedy crowd! Not being able to buy food, I didn't dare to ask for water. And I saw these things with growing longing and envy all the next day.

All through that day I grew more anxious. What should I do when we reached Vienna, and what if I should fail to get money there? When in the evening we rolled into Vienna, I had made up my mind to act boldly. I hired two carriages, one for myself and one for my trunks, and a baggage wagon for the caged mouflon; and I drove in state to the best hotel—the *Kaiserin Elizabeth.*

A porter looked out and ran back; evidently an important guest was arriving. Quickly there formed a double row of servants across the sidewalk, and through this came the landlord. He opened the carriage door obsequiously, expecting a personage—and only I stepped out. However, he knew me and welcomed me. I had the porters take the mouflon out of the heavy cage and hold him by the rope. Then I asked the landlord where I could put the animal out to board. The mouflon came to smell my pockets, then tried at the landlord's. The latter said: "Why not here, Herr Pumpelly? We have a court."

Pauline Pumpelly Gregg, 1903
From a photograph by Elise Pumpelly Cabot

"Oh no!" I answered, "not here; he would break everything in your house!"

The mouflon put his nose longingly against the landlord's hand; then stroking the animal's forehead the landlord said:

"He's as gentle as a pet lamb, Herr Pumpelly; we have many children in the house, and he will be a great pleasure to them."

I insisted that he was terribly destructive.

"Let him stay here! I'll be responsible for all the damage he may do," was the answer.

I weakened, trusting to luck and to the tying rope. So the mouflon became a guest.

We entered through a hallway. At the further end a door opened into a court paved with stone. This court was perhaps thirty feet square. On the right-hand the wall had a continuous stretch of windows lighting the kitchen. On the left-hand wall a similar expanse of windows lighted the dining room. The other two walls were blank spaces.

In the middle stood an iron lamp-post; this was all there was in the court, excepting at the center of each blank wall there was a pedestal supporting a large plaster cast of a Greek deity.

A porter tied the "pet lamb" to the lamp-post, and I saw that he was properly fed.

The mouflon was hungry: for he had gone over two days on half a cigar.

I was starving; I had existed three days on the memory of an evanescent egg and a cup of coffee.

I knew the danger of over-eating under such circumstances, and sat down resolved to be prudent.

That night I had a night-mare; I was being tracked by the Austrian police for some awful crime; a loud knocking awakened me, the police were breaking in; I jumped out in the darkness and opened the door and was instantly knocked sprawling on the floor.

The police were my mouflon. The servants had been cleaning, and had left open the door into the court. The mouflon had become untied, and traced me to my room and had butted against the door.

When running loose at the *bergerie* in Corsica, he had been able to find me when I was not where he could see me. I don't remember having taken him to my room that evening; he must have traced me here as he did in the mountains.

I made him lie down; then I went to bed and slept sweetly. I was awakened by a noise.

My bed was at one end of a long room, and I faced a window at the other end. It was daylight. The mouflon had just jumped onto a bureau at the foot of my bed, and stood out in full view between me and the window. He had never seemed so beautiful; I noted the proud poise of his head and the powerful horns. I was happy.

Suddenly I saw him glance across the room; then, bringing his feet into position he sprang. He had seen another mouflon challenging him, and he landed in the looking-glass. I looked out of the window and saw that the sun was only just rising; the way would be clear for me to get the animal back to the court. So I pulled on my trousers; my shoes were gone to be polished. I tied a string around his horns and started out barefooted.

The stairway was a square wall; you descended to a landing half-way between floors; then turned and continued down from this landing in the opposite direction, to the next floor. There was a low dado wainscot rising from the stairs; above this the wall was covered with narrow mirrors joined together to give a continuous surface of glass. As you went down, you saw yourself in another great mirror that covered the wall of the landing. I had gone half-way down the first stairs when the cord was jerked from my hand,—the mouflon had seen another ram, and had demolished him with a loud crash of shattered glass. A sharp piece had pierced his back and had drawn blood.

He was frightened by the vanishing of these ghost-like mouflons. He was also pained.

In his terror he sought safety.

Before him the great mirror of the wall of the landing seemed to offer safety on the reflected stairs, and with a mighty spring he sailed over my head.

He landed half-way in the mirror and with another great crash, mouflon and glass fell to the floor.

Then he fled below.

I was dazed.

The noise of opening doors sounded along the corridors. The guests in nightgowns rushed to the stairs and peered down from above and up from below.

They saw a disheveled boy with bare feet standing between two piles of glass; and they saw blood on the steps.

They expressed freely their opinion of me and of the happenings, in many languages. One man said I was a "spleeny Englishman on a spree."

This seemed to explain, and they went off.

I remembered my empty purse and the uncertainty of landlords' promises. I also felt pained by some personal remarks made by the guests.

I sneaked down to the hall and found that mouflon, and I tied him tight, as I thought, though I have already confessed that I never learned how to tie a hard knot till forty years later.

Then I got back to my room, dressed, and quietly left the hotel and walked the streets till the bank should open.

When I offered my letter of credit, the cashier looked at it; then he said: "*Es thut mir leid,* but since your respected letter is not drawn on the Barings, we shall have to forward your draft to London for acceptance before paying."

"How long will it be before I can touch the money?" I asked.

"About two weeks," he answered.

"Can't you get authority by telegraph to pay?" I asked.

"We never pay on telegraphic advices," he answered.

I went out to meditate. I had left the hotel without breakfasting, and longed for my usual coffee and an egg. Thinking of eggs recalled the bet I had won against von Andrian and Cotta that I couldn't swallow two eggs on an empty stomach; and thinking of von Andrian reminded me that he might be in Vienna, because he had entered the Austrian Geological Survey.

I found his address in a directory, and went to the place, which was a large apartment house. The porter directed me to an upper floor. When I reached the proper landing, I heard strains from a violoncello. I knew that von Andrian played: so I triangulated the hallway till I located the proper door and knocked.

I was right; von Andrian opened the door and was glad to see me.

"How long shall you be in Vienna?" he asked.

"Till I can get enough money on my letter of credit from London," I said.

Then I told him of my experience at the bank, how only letters on the Barings were honored.

After thinking a minute he said:

"There are many American students here who must be in the same condition. Your Minister should be able to give you advice; why not go and see him?"

This hadn't occurred to me: so I got up to go to our legation.

"That's right," he said, "but promise me that you'll come right back and tell me the result."

I promised and went away. The Minister's name was Jackson, and he hailed from Georgia. I said to him:

"Mr. Jackson, I am an American student stranded in Vienna with a letter of credit. The bank will not pay my draft till they have notice of its acceptance in London, because it is not drawn on the Barings. This will take at least two weeks, and I need the money now. I don't understand these things, but think there are many Americans here in the same fix: so I have taken the liberty of coming to you for advice." Then I handed to him my letter of credit and my passport.

He looked silently through the letter and at all the notings of drafts that had been paid on it. Then he opened the passport. I had traveled much during four years; the pages were thickly covered with *visés*, and, for added space, the police had tied and sealed the document into a booklet of many pages which were nearly filled with more *visés*.

The Minister looked the book slowly through to the end. He had till now not spoken a word.

"Mr. Pumpelly, why don't you ask the banker to get instructions by telegraph?"

"I have asked them, Mr. Jackson, they don't pay on telegraphic advices."

He relapsed into another silent reading through of my letter and of the passport.

Then that man folded my papers and gave them back to me. He took out his watch and said:

"Mr. Pumpelly, I have an important engagement."

Then he stood up. It was a dismissal.

I felt that he had taken me for a beggar. I thanked him for his marked kindness and for the excellence of his advice.

When I reached von Andrian's room I noticed a pile of things on his table that had not been there before. And when I told of my reception by our Minister, he made some remarks about his American Excellency; then he said:

"I've had a pawnbroker up here, and find that pledging all my belongings won't bring enough to help you out. What have you got to add, to make up? Have you a watch?"

"No, mine is there already. I've only five boxes of rocks and a mouflon. A mouflon, *lieber Andrian,* is a gentle wild beast who amuses himself by hunting for his kind in looking-glasses, and demolishing them. The looking-glasses belong to my landlord."

Then I told the mouflon story up to date.

"You'll have a bigger bill than we can settle," he said, "you must sell the mouflon if you can't wait for money from London."

"Only too willingly," I answered; "but who'll buy him?"

"I've never heard of a mouflon," Andrian said, "so he must be a rare animal; why not try the Zoölogical Garden? Write Herr von B——, whose charge is the *Thier Garten,* for an appointment, and when you see him, ask a big price."

Andrian dictated the letter and sent his man with it to the palace. The messenger returned with a note containing an appointment for eleven o'clock on the next morning.

Now that the mouflon was as good as sold, I began to have regrets as I walked to the hotel. To sell him was to acknowledge failure; failure on my part, not on his part: for as a mouflon, he was a brilliant success. While thinking these thoughts, I entered the crowded dining room. The only vacant seat faced the court, and looking out I could see my pet sleeping calmly at the foot of the lamp-post. As I looked on those victorious horns and recalled their exploits, I felt proud of their owner, and sad regret at the thought of the parting.

Fearing that he might wake up and see me, and come to me, I moved a vase of flowers to hide me, and began to eat. Suddenly I heard a child call out:

"Mama, mama, look! that wild animal is loose!"

There stood the mouflon looking for a place to jump to. He jumped.

He landed on the high pedestal of the Apollo Belvedere. The impact sent the pedestal against the wall, and Apollo onto the pavement, but not before the mouflon had gathered force for another spring. He sailed through the air and through the kitchen window, where he overturned a table covered with crockery.

The frightened cooks and waiters rushed out into the court.

The guests, startled by the child's cry of "wild animal" and by the crashes of statue and glass, rushed to the window. I was the only one that remained seated.

During the excitement the landlord entered the room. Raising his hands to calm the guests, he came towards me saying:

"*Meine Herren and Damen,* pray do not be excited, it is only this gentleman's pet lamb!"

He had come to ask me to get the animal out of the kitchen, so that the servants would go in.

I went through the long room feeling the stare of all those people, and knowing that some of them had said uncomplimentary things about me when I stood barefooted among the ruins on the stairs.

I found the mouflon on a table, with his nose buried in a dish of brussels sprouts, and covered with the white sauce. I got him out and tied him to the lamp-post.

I wasn't anxious to meet the landlord: so I slunk quietly out of the hotel, and wandered till night. Then I slipped in and went to bed to kill time, and to drown my feelings in sleep.

I breakfasted in my room, and went out to walk the streets.

At eleven o'clock I was received by Herr von B——. He was a short man with ribbons of several decorations on his breast. He was very courteous, and asked me to what he owed the pleasure of my visit.

I told him that I had brought a mouflon from the mountains of Corsica, intending to take him with me to America, but that I found him to be an embarrassing traveling companion, and would like to sell him.

"A mouflon!" he said. "Oh, the mouflon is a rare animal; please describe yours."

Then I spoke elaborately of the size and horns of that mouflon, of his general beauty, and of his moral character.

The director listened with a face beaming with appreciation.

"*Wunderschoen!*" he explained; "yes, mouflons are rare, very rare, and yours would be a prize for a *Thier Garten;* how much do you ask for him, Herr Pumpelly?"

"He has cost me about five hundred guldens," I answered; "I would like to get back what he has cost me."

"Only five hundred guldens; why that should be a mere bagatelle for such a fine specimen; we will be glad——" then suddenly grasping his head with his hand he exclaimed:

"Ach! how could I have forgotten; pray pardon me, Herr Pumpelly; during this interesting conversation I had forgotten to say that several years ago His Majesty received a present of a pair of mouflons from the King of Sardinia. They have produced a herd, and the Emperor sometimes shoots one of them. I'm so sorry that I had forgotten."

My hopes were dashed. I stood there feeling that I had come to market with one unsalable sheep. I didn't like that seeming, so I said that I wanted the mouflon to have a good home, and begged that the *Thier Garten* might take him as a gift.

"Ach! that is too kind!" the director said; "but if you insist, we shall be delighted. I can assure you that you will receive an acknowledgment from His Majesty before you leave Vienna; by the way when do you leave?"

"To-morrow," I answered.

I wrote out and gave him an order on the hotel for the mouflon. Herr von B—— took it and said, in opening the door:

"You will surely receive an acknowledgment from His Majesty this evening or early to-morrow."

I wandered wearily to von Andrian. He was not consoling. He said I should have kept the animal: for I would now have to let my draft go to London, and wait for the money. I regretted having needlessly given away my mouflon.

After several hours I left von Andrian, and walked slowly to the hotel, dreading to enter.

As I came near, I met a wagon carrying off the mouflon: the director had lost no time. I looked longingly after my departing companion; all his exploits were forgiven, in my sorrow at his loss. Then with uncertain steps, I entered the hotel.

A porter hurried to meet me, holding out a telegram.

In the evening when I had arrived in Vienna, that is as soon as I could let some one else pay for telegraphing, I had wired to my fellow student Niccoli, in Freiberg, who was under some obligation to me for help in a delicate matter, to send me a certain sum of money. I had not really expected that he could raise the amount.

The telegram was short but it raised my spirits:

"All will be done.
Niccoli."

The letter came the next morning; and it brought more than the amount I had asked for. It contained also the names of all the contributors to this charity, with the amounts opposite each name. Nearly every foreigner had put in all he had on hand, whether little or much.

Here is a translation of Niccoli's letter:

Freiberg 4" December 1857

"*Carissimo Amico.*

Behold! herewith after my canvassing, I have succeeded in sending you, since receiving your request this morning, altogether the sum of eighty-five thalers.

It is truly a prodigy that we have succeeded, for I assure you that in the condition in which we students now find ourselves, we do not have even a pfenning. It delights our souls nevertheless to be able to meet your needs, and to see you, by this means, soon again among us after so long a time that we have been deprived of your company.

Here I send the list of those among your friends who have wished, or to say more truly, who have been at all able to send any money.

From	me	Thalers	5
"	Dorado	"	5
"	The brothers Janin	"	20
"	Hague	"	15
"	Kamienski	"	10
"	Fudakowski	"	30
		Summa	85

I hope that you will come soon from Vienna; but if not that you will write me something, where you have been and what you have done.

In the hope of seeing you very soon among us we send you greeting and we hope for you a most happy ending of your journey.

In the meantime receive an embrace from your sincere friend

Enrico Niccoli.

P.S. You see that I have sent twenty-five thalers more than you asked for. Fudakowski begs that you repay him after Christmas."

I foresaw that there would not be enough money to cover all the cost of my mouflon's amusements, but I hoped the landlord would let me send the excess from Freiberg. How little I knew that man!

That evening von Andrian and I celebrated the relief. There was lacking only the promised acknowledgment from His Majesty. I was to leave Vienna by the night train.

After the supper, I went to pay my bill, or at least a part of it. The bookkeeper made out the account, carefully entering the usual innumerable list of extras, and not forgetting all the candles I had looked at. I examined it, and asked him if he had not heard of my mouflon's damages. He turned to the landlord——

My host drew a long sigh:

"*Ja ja* Herr Pumpelly, there were many damages, but you know that I promised to be responsible."

And he persisted in refusing payment.

In less than two days, that blessed animal had demolished not less than sixty square feet of mirror, to say nothing of three ghost mouflons. And that phenomenal landlord stuck to his promise.

My host went with me to the hack. With his hand on the door handle he said:

"*Bitte,* Herr Pumpelly, I would like to say something; you have been with me twice before, and your honored mother has been here, and your honored sister been here, with her family; I hope we have treated all of you well."

"You have indeed, especially me," I answered: "why! you might have killed that animal, and have served him larded with pieces of the mirrors, and made me eat him as *mouflon glacé.*"

He laughed, saying: "*Das wäre schön!* but I would like to make one little request; I hope you, and your honored family will always come to my house, and that you will send all your friends here; I promise to treat them well; but I would beg that you will never bring any such foor-footed guests."

Then laughing, he opened the carriage door and bade me "*Glücklieche Reise.*"

When I reached Freiberg, my friends were waiting for the *diligence,* and took me to a celebration supper. After this they made me tell how it was that I had got stranded. So I told them about the trouble with my letter of credit.

And then I told them the mouflon story to date. I say to date, because there are some sequels in the future. If I had not told it then, it would have been forgotten, like many other adventures of my life.

My friends seemed to enjoy the story; they made a few sarcastic remarks, and in atonement elected me president of the club.

CHAPTER XIV

SEQUEL TO THE MOUFLON STORY AND RETURN TO AMERICA

To round out the story of the mouflon, I will give here the sequels, although out of chronological order, and although they happened several years apart.

The following summer was to be the last vacation I should have before leaving Freiberg and entering upon the serious duties of life. There was an English student—Parkyn—who was in the same condition.

We decided that we would use that vacation in the manner that would give us much adventure combined with some profit in the way of seeing mines. Before going out into the cold world, we must have such a fill of rousing experiences as would forever remain warm in our memories.

Parkyn knew what real adventure was: for he was older than I, and he had spent two years in the wild life of the first rush to the gold fields of Australia. One of his stories recurs to me.

Parkyn stayed one night at a wayside house in the "bush." He was eating when a man entered and handed to the cook something wrapped in paper, telling him to cook it. Then he sat down opposite Parkyn. When the man had emptied the dish, he leaned back and said:

"There! I told the damned —— I'd eat his damned liver, and I've done it!"

It was clear that no tame adventure would satisfy Parkyn's longing.

So all through that winter we discussed the possibilities of all the countries of Europe. Parkyn thought them too simple. But before the end of the *semester,* there came the news that Prince Danielo of Montenegro was going to fight the Turks.

This seemed promising. We decided that we would go to Montenegro. We would offer our services to that Prince, in the noble effort to destroy the infidel invader! It seemed quite natural that we should be accepted, and very certain that there would be adventure galore.

Incidentally, we would examine some mines on the way through Hungary. And we started on this enterprise. We went first to Wielicka in Austrian Poland.

Here we descended by a stairway cut in the rock a thousand feet into the earth. We wandered through great rooms cut in the solid rock salt, their lofty roofs supported by columns of the almost transparent salt. We crossed subterranean lakes in boats. There was an enormous salon with a table cut out of the rock (salt) running the whole length of the rooms. Chandeliers hung from the roof, with pendants of salt crystals instead of glass, and the walls were, I think, decorated with sculptures in the same glistening material. In this room, I was told, there had been a royal banquet. There was also a chapel with altar and saints all cut out of the rock salt.

To take us to the surface, there was a great rope with many loops at the end. We and the other visitors each occupied a loop, and in the shape of a great cluster of grapes we were lifted to daylight up through a large shaft in the white rock salt.

After having soothed our consciences by noting the method of mining, we bought a pair of Magyar ponies and a light wagon, for the journey to Buda-Pesth.

I remember few details of this stage of our journey of nearly 200 miles by road. It is a memory of delightful summer travel in ideal weather, through Galicia and over the Carpathian Alps, and all the way over the plains of Hungary to the Danube.

I recall the approach to one Galician village, and a vision of many Jews loitering about, all clad in long, black Gaberdines, with tall silk hats. They had long, greasy curls and beards. It seems strange that from this clothing are descended our silk hat and frock coat.

We stopped at noon to eat at a house in the village. Evidently the only clean food would be boiled eggs. When we asked for spoons, the woman thought for a minute, then opening a drawer in our table, and raking over a mass of dusty rubbish, brought forth one spoon green with verdigris, which she offered without further ceremony. Fortunately the eggs were hard enough to eat without spoons. While the hostess was out hunting for change, we opened a door and found ourselves in a synagogue. My cane stuck deep in the dirt on the floor.

All that afternoon we passed groups of Galician peasants, men and women in bright gala costumes.

We were told that the Jews owned the distilleries, and absorbed the means of the peasantry. It is the old story of contact between races.

We geologized on the Carpathians, and climbed the peaks of the Tatra Mountains, and we enjoyed for several days such luxuries as were offered at a favorite watering place in the mountains.

Then, as a sop to that Cerberus, conscience, we made a careful study of the gold mines and methods at Kremnitz.

We made a side excursion to find von Andrian, who was working on the Geological Survey. He drove with us part of the journey, starting at three in the morning. Looking at the brilliant starlit sky, I saw a faint star that seemed blurred in contrast with its neighbors. After much discussion we agreed that it must be a comet. It was the great comet of 1858. During the rest of the journey, we saw it growing to the distinct comet form. And through that summer I saw it stretch out its tail till it swept, in a brilliant curve of light, half across the heavenly arch. I think our first sight of it was before it was noted in the newspapers.

At Buda-Pesth we sold our outfit, and boarded a steamboat to go down the Danube. An inspection of the berths showed evidence of undesirable small occupants, so we decided to sleep on the cushioned benches that surrounded the large saloon.

The boat moored to the shore for the night. After supper Parkyn and I went out for a walk.

When we returned, we found that all the benches and the tables were occupied by our fellow travelers. The benches were continuous, and divided into about six-foot lengths by low arms.

We found seat-room where two sleepers had drawn up their knees; and we sat down. My imagination was occupied with unpleasant entomological memories, and it was, perhaps, unintentionally that, in reaching down to relieve the sensation of a turned hair, I touched the head of my neighbor on the next bench while I muttered audibly: *"Ach die verfluchten Wanzen!"* My neighbor stopped snoring, turned over, began again, then stopped and began to scratch; then he began to loudly damn the *Wanzen* and the "dirty boat." In a minute all the sleepers were infected and up. They used the bad words of several languages. They went out to sleep on the deck. The people on the tables, and Parkyn and I, had the benches to ourselves and slept sweetly. I have sometimes felt that a more Christian spirit would have led us to leave those misguided sleepers in peace, and to resign ourselves to the deck.

I don't remember whether we were one or several nights on that boat, but we came at last to the mouth of either the Save or the Drave River, whichever of the valleys had the route to Montenegro. Here we left the boat and started southward. It may have been near the landing or further up the valley, that an officer of the Austrian Frontier Guard demanded our passports. We had forgotten to have them *viséd* for Montenegro, and were turned back. We tried to get through at another point. Alas! we were arrested as Russian spies! We were brought before an officer. He compared our identifications on the documents, and looked serious.

"You have done a dangerous thing in trying to cross this frontier without permission; what was your reason?"

"We are two students on a vacation trip, and we thought to have some fun in fighting the Turks," we answered.

The officer clearly saw some humor in the idea. He laughed good naturedly.

"*Das wäre schoen,*" he said, "but I'm sorry that it's impossible." Then he added:

"I might arrest you, for we are neutrals; but I'll accept your word of honor that you won't try again, and will let you go elsewhere in Austria-Hungary."

We promised.

A considerate providence, or perhaps the shades of our ancestors, had made us forget the *visés,* and had dashed our hair-brained plan.

We couldn't kill Turks; we decided to go to Belgrade, which was then Turkish territory, and see what kind of people the Turks were anyway. So we took the next boat, and steamed down the beautiful Danube. We got *visés* for Belgrade, and crossed the frontier.

In the quaint city, that had seen the carnage of invading hosts through the centuries, we found a son of Professor Weissbach or of Professor Breithaupt, I forget which. He went around with us and introduced us to the governing Pasha.

The Pasha was a genial old gentleman; he received us very kindly and made us sit on divans. Coffee and delicious confections were placed before us by slaves; and we smoked *Latakia* in *Narghiles* with long, flexible tubes. We liked these so much that he presented them to us, and I still have mine. He spoke French much better than we could, and we talked long about Paris and Turkey.

The Pasha treated us so well that we felt quite resigned to our disappointment, and were inclined rather to like the Turk we knew better than the Montenegrin we had not seen.

As we had to find new fields to roam in, I said to Parkyn: "Let's try Transylvania. No one goes there; it's a quaint region, with lots of interesting gold mines and picturesque scenery."

"Oh, hang Transylvania!" he answered, "I'm tired of these Danubian countries; let's go to Vienna."

"If you don't care for Transylvania," I said, "we might branch off south, and tramp through Croatia and Dalmatia to the Adriatic. It's a wild region where the rivers are lost in underground caverns, and the people haven't got out of the fifth century."

Parkyn used some improper words, and persisted in going to Vienna.

"Tell me why on earth you want to go there now," I answered, "we've both been there, and it's a hot and dreary place in summer."

"Well, if you must know, I'll tell you; I didn't want to tell. Now don't misunderstand; it wasn't that the boys didn't believe all your tale about the things your mouflon did; no, it wasn't that; the truth is, they made me promise that, if I ever got out of Montenegro alive, I would go to

Vienna, and I should see whether there was any such animal as a mouflon anyway!"

I had to agree. So to Vienna we went. We drove out to Schönbrunn. An old keeper said:

"*Ja wohl,* many people come to see our mouflons; they are the only ones in any *Thier Garten* in Europe."

He led us to an inclosure in which were two mouflons—my superb animal and a smaller and lean one.

"Where are the others?" I asked.

"There are no others," he answered.

"You're mistaken," I said. "There's a herd of them; His Majesty comes here to shoot them."

The old man threw up his hands:

"*Sind sie wahnsinnig* (are you crazy) *Mein Herr?* I have told you that these are the only mouflons in confinement in Europe. That little one was presented to His Majesty by the King of Sardinia three years ago. His Majesty bought this fine one last winter from Herr von B——. He paid him 1,500 guldens."

Seeing that my companion was about to speak, I said to him:

"Keep quiet, don't say a word. Let's get right out of Vienna." I knew something of the Austrian secret police, and Herr von B—— was an official of importance.

Ten years later, when I was on Lake Superior, selecting the land grant of the Portage Lake and Lake Superior Ship Canal, I received a letter from a German friend in New York, who wrote that he had given to two gentlemen a letter recommending them to me. They were traveling incognito. One was Duke Wilhelm of Würtemberg, uncle of the Emperor of Austria, and Field Marshal in the Austrian army. The other was Prince Eugen, his nephew, and heir to the throne of Würtemberg. The duke had expressed a wish to visit the great primeval forests of the Northwest, and the iron mines.

He was interested in geology, and the royal family had large interests in iron mines and forests, and in the industries connected with both. My friend hoped I would be able to aid these gentlemen in their visit.

A week or two later, in Marquette, two cards were handed me,

"W. T. Würtemberg."
"Eugen Würtemberg."

The duke was a tall man of soldierly bearing, and still feeling wounds received in the war in Italy. The prince was young, and with the manner of a young German officer. I noticed that in leaving a room, the uncle always held the door open for the nephew to pass first. Both of them had the affable simplicity of manner of royal personages.

I showed them the mines. We spent a night at a mine owned by a German. It turned out that he and the duke had been at the same school as boys; and they passed the evening drinking beer, smoking, and talking over old times.

I took them with me for a week or more on a trip, in canoes and on foot, through the great untouched forest. They adapted themselves at once to the very rough conditions and food. The older man showed intelligent interest in all he saw, the younger one shot game.

We passed long evenings telling stories by the great campfires. One night, when I thought I knew the duke well enough, I told the mouflon story. He was listening with interest. When I came to the scene where I stood on the stairs between two shattered mirrors, he started forward throwing out his hands.

"I was there! I saw you! I had my apartments in the *Kaiserin Elizabeth.*"

When in finishing I came to what had been my real reason for telling the story—the statement by the keeper that Herr von B—— had sold the mouflon—the duke said:

"*Ja,* those fellows are shameless, they do such things. But, Herr Professor, I shall tell the Emperor; you shall have your revenge."

The duke died soon after returning to Vienna, and I fear that I may have missed the revenge.

In my student days and in the following years, I was often asked to tell this story. It got ahead of me in my travels, and I have told it in English, German, French, Italian, and Japanese.

For once I reached Freiberg before the opening time. Several of my friends had left. Niccoli had been called back to Tuscany. There was a letter from Hague, from the remotely isolated Baker's Island in the South Pacific Ocean, where he had charge of guano exploitation. He wrote that ships arrived at intervals of many months. The only animals were sea birds and overwhelming rats. His chief diet was the eggs of the birds. His sole amusement was in satisfying the cravings of the gulls for rats. A long cord with a rat at each end and hurled upward into the air started the game; the birds did the rest. They came in clouds. The rats were swallowed at once; a tug of war began. As soon as one bird had to give up his rat another bird seized it, and so on as long as the cord held out. As birds and rats were in plenty, there were several of these circuses going on at the same time.

I set about arranging and studying my Corsican collection of rocks. Cotta had been interested in some nodular concretions in quartz porphyry, of which he had specimens. As my collection from Corsica was rich in varieties of these, he asked me to make a systematic series of quantitative chemical analysis, to get at some explanation. This made me feel quite proud.

At the same time I worked out my scheme of the relative ages of the dikes I had studied in Corsica, to each other and to the rocks they traversed.

Then I wrote an account of the occurrences of traces of ancient glaciers in Corsica. The relation of glaciers to geological history had only recently begun to be discussed. Glaciers had, in some past time, existed on the highest mountain masses of Corsica, and the finding of the skeleton of an Arctic *Lagomys* was evidence of a former colder climate in the Mediterranean. What had caused the change?

The wide distribution of erratic blocks, in northern Europe, blocks which had clearly come from higher latitudes, was generally ascribed to marine transportation on icebergs. Agassiz's hypothesis of a moving polar ice-cap extending to central Europe, was still in general disfavor. Lyell had sought an explanation of a glacial epoch, in a different distribution of land and water over parts of the globe. I thought then that expansion of glacial activity must be due to a period of increased precipitation. The Sahara was thought to have been once covered by a great inland sea. This seemed to me to offer a source of moisture for which the south and southwestern winds should have been the carriers to the Pyrenees, to the Alps, and to the Corsican mountains. These same winds are now dry and hot. When the Sahara dried up, these winds should have, through heat and evaporation, caused the recession or disappearance of the glaciers. This seemed, to my youthful imagination, to be a good hypothesis.

I searched such scientific literature as was at hand, for possible clews; and when I found that fossil specimens of a northern species of the mollusc Cardium, were found somewhere in the western part of the Sahara, or perhaps at the base of the Atlas Mountains, this seemed to strengthen the basis of my hypothesis.

One evening, when I was sitting with Cotta the geologist and Reich the physicist, and the conversation turned to glaciers, I ventured to tell of my paper on remains of glacial activity in Corsica, and then of my idea as to the influence of a Saharan sea, and of the winds from that direction. The two professors showed much interest; they said it was a new idea, and they thought it a very good hypothesis. They advised me to publish it, and said that if I would combine the paper on Corsican traces of glaciers, and the Saharan explanation in one paper, they would send it to Heidelberg, and I should get a degree of Ph.D. in *absentia.*

I prepared the Corsican paper for publication; but when it came to the question of the Sahara, I realized that little was really known about that region. Just at this time, reading that a French scientific expedition was about to explore the Sahara, I wrote for permission to accompany it to get confirmatory evidence or the reverse. No answer came. I suppose I was too late. The expedition was, I believe, never heard from.

Fortunately I hesitated to advance a theory which would be proved worthless if the proposed expedition should find that there had been no great inland sea over the present desert. I would not feel proud of the degree based on false premises, even if I should get it. So I published the Corsican paper in Leonbard and Bronns *Neues Jahrbuch.* This I read later before the Geological Society of France. It led to a long discussion, and I remember my embarrassment in trying to make my French equal to answer quickly succeeding questions. Contrary to the custom of not publishing papers that had been printed elsewhere, my paper was printed in the bulletin of the society.

Several years later, when I was writing my Geological Researches in China, Mongolia, and Japan, in Professor J. D. Whitney's library at Northampton, I told him of my Saharan hypothesis. He said that Desor had recently advanced the same idea. When later, it was discovered that there had been no great Saharan sea, I was glad that I had not published it myself.

I received my certificate from the authorities of the Academy, made a tour of farewell visits, and, with many "*Glückauf!*" blessings, started forth into the world. I was harassed by the feeling that I was ending my education with a very widely neglected gap in the way of broader culture. I felt that I should like to spend years at a university, studying history and archæology. The geological history of the globe and of its lower forms of life, which had been my chief interest, seemed to be only stepping-stones to the history of man.

But my parents had spent so much for my six years in Europe that it was a duty to shift for myself.

After a round of visits to the coal mines of Westphalia, and a visit to some mines near Aix-la-Chapelle, I came to Paris. Here I stayed for some time working in the collections at the *Ecole des Mines* and at the *Jardin des Plantes,* and in collecting fossils in the Paris basin, this time with a much better knowledge than in my earlier excursions.

I lived again at the pension at 25 Rue Royale, where I found again my friend Baroness de Pailhez and several agreeable ladies.

I remember that I was surprised at the rather free way in which these *nice* and *cultured* French ladies spoke of things which did not enter into conversation between the sexes in Anglo-Saxon circles.

There was a lady who came every evening to play cards, which usually meant whist for small stakes. One evening I unfortunately introduced *lansquenet.* The visiting lady lost to me, and continued to lose till, at the end of the evening, she had lost a large sum. I saw that she was distressed; for it was a point of honor to settle debts at once. I insisted on her waiting for revenge the next evening.

When she was gone, Madame de Pailhez said to me very seriously:

"*Mon Ami* I am sorry you started that game of hazard. This lady's husband is away for months; he gives her no money. It is an unhappy *menage.* She is too proud to let you call the debt off; for she is in honor bound to pay it in some way. There are only two alternatives: for she is almost sure to go on losing till she becomes desperate. The wiser alternative for you and for Madame de B——, is for you to manage your play quietly so that she shall win it all back." This I did easily the next evening, as she was a novice at the game.

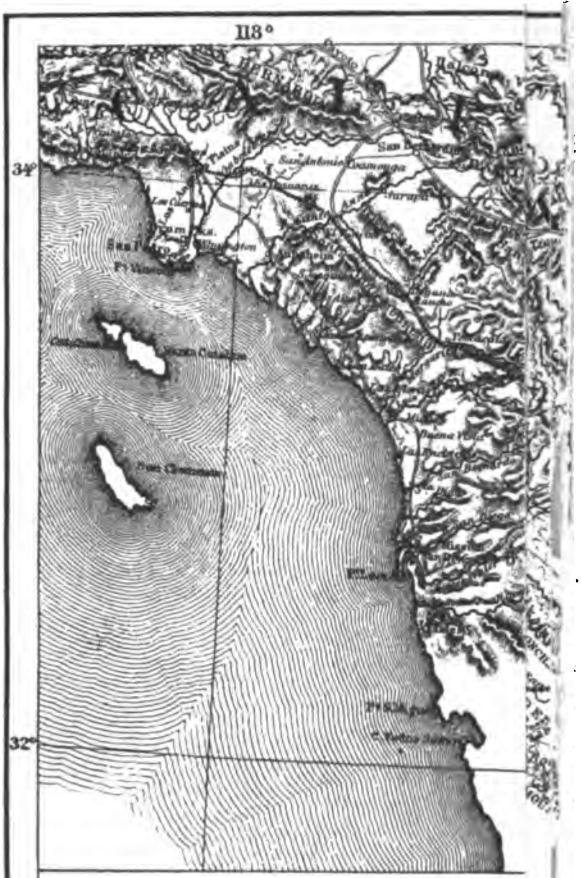
It must have been autumn when I left Europe to return to America. In coming, I had crossed the Atlantic on a sailing vessel to Hamburg in fifteen and a half days, the trip back from France in a steamer was, I think, about as long. The steamer was the *Ocean Queen,* a large side-wheeler. The passage was very rough. We had a startling experience; during the night I was awakened by a hard bump on the bottom of my berth which was the upper one. In the lower one slept Susini, the opera singer. He was a large and powerful man; it was Susini's head that bumped. There was loud shrieking in the adjoining saloon. We jumped out, and into water up to our knees. Opening the door we saw a wild and weird sight. The long saloon occupying the rear half of the ship had already a foot or more of water. The ship was pitching. The passengers, chiefly women in night clothes, were hanging to the revolving stairs, along the double row of tables. Their floating bodies swung around in unison to point toward bow or stern as the water surged back and forth.

I could see that the water had come in through the port-holes at the stern; and I remember that before going to bed I had opened these for air. With much difficulty I managed to close them.

The explanation given by the ship's officers, and which I never understood, was that we were driving before a severe storm on a heavy sea, and that the waves traveling faster than we did, had at one moment reversed our engine and submerged the stern. I don't know yet that this is possible; but I did know, silently, that all those ladies owed their salt bath to me. One wheelhouse with a man was carried away, for which I was not responsible, nor was I for the big lump on Susini's head.

I remember one other passenger on this voyage—Mr. Yancey—who was prominent later in the Southern Confederacy. We were much together. Once, when he showed interest in my plans for the future, I happened to express doubt as to an opening for professional work in mining; and whether I should gain a living. He threw his arm over my shoulder and said: "Don't worry; you'll find that money comes fast enough; the trouble is in keeping it."

This was very consoling, for I didn't as yet know how true was the qualifying phrase.


118°
34°
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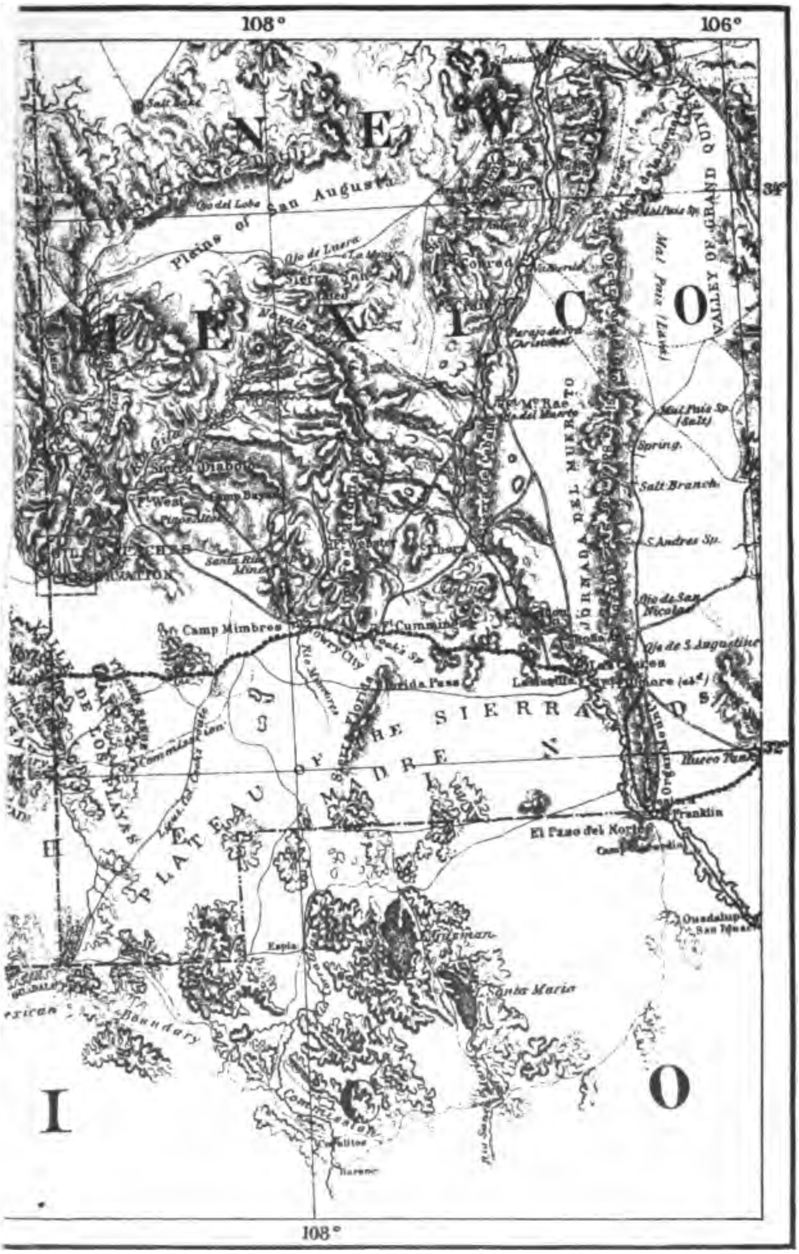
MAP OF ARIZON
with part of
SONORA AND CALIFO

From *Across America and Asia*

118°


108°
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32°
108°
NEW MEXICO
Salt Lake
Ojo del Lobo
Plains of San Augustin
Ojo de Lucero
La Mesa
Sierra San Mateo
Navajo
Sabinal
Socorro
Mal Pais Sp.
Mal Pais (Lava)
VALLEY OF GRAND QUIVIRA
Paraje de Fra Cristobal
Ft. McRae
Ojo del Muerto
Mal Pais Sp. (Salt)
Spring.
Salt Branch.
S. Andres Sp.
JORNADA DEL MUERTO
Gila
Sierra Diablo
Ft. West
Camp Bayard
Pinos Altos
APACHES
Santa Rita Mines
Ft. Webster
Ojo de San Nicolas
Ojo de S. Augustine
Las Cruces
Camp Mimbres
Ft. Cummings
Cooke's Sp.
Ft. Fillmore (abd.)
Rio Mimbres
Florida Pass
La Mesilla
LLANOS DE LOS PLAYAS
Commissioner's
PLATEAU OF THE SIERRA MADRE
Sierra Florida
Hueco Tanks
32°
Franklin
El Paso del Norte
Guadalupe
San Ignacio
Janos
Guzman
Santa Maria
Mexican Boundary
Commissioner
Carrizalitos
Barranco
Rio Santa Maria
MEXICO

CHAPTER XV

I GO TO ARIZONA

WHEN I reached home, I found my dear mother happy in having resumed her painting at the age of nearly sixty, after an interruption of thirty years. She had learned to paint on porcelain. So I made the first practical application of my knowledge, in building a furnace to burn her plaques instead of having to send them to New York, where they were apt to be injured.

My father was now nearly eighty years old. With him as well as with my mother, my ties were very close, and the temptation to settle down in their companionship was strong. Still I knew that it was time that I should justify the large drain on the family purse caused by my six years abroad.

I had no prospect of employment. My brother, who was a civil engineer, had sent to me to Freiberg some rich specimens from a gold mine in Virginia, which he had been sent to examine, and I had rigged up an apparatus to test them by the chlorination process, then recently invented by Professor Plattner. I thought it might be of use to me to try the process in America. So I went to New York, to the owner of the mine, and got his permission to do what I liked.

I thought the owner was very kind in giving me a free hand with a mine which I supposed was active. But when I reached the Franklin, I realized that the kindness involved no sacrifice: for the property had ceased paying, and was abandoned to a caretaker. There was a large amount of tailings spread over a flat. I sampled these tailings by digging many holes to the bottom, and "quartering" down the mass from each hole. I took samples from parts of the still-standing quartz vein. I assayed each of these samples. I mention these details because I have an impression that this may have been the first attempt at differential sampling in ores at mines in the United States. I don't remember now the percentage of gold, but what there was was chiefly contained in pyrites of iron and copper; the tailings would have to be roasted.

The caretaker was a very intelligent man, and there was a free colored man at hand who had had charge of the engine, and was a good mechanic. With their help I built a long flat open roasting furnace of old iron plates laid on brick. Wood was abundant, and we managed to roast a large quantity of tailings in this very primitive and imperfect manner.

We sawed planks and made cylinders about three feet high and a foot in diameter. These we filled with roasted tailings brought with water to a "wooly" consistency. Through a hole in the bottom I introduced chlorine gas, generated, I think, in old demijohns. The gold I precipitated with sulphate of iron.

The assays showed the tailings, and the ore visible in the vein, too poor to pay, but I was convinced that the process would be of value in the future.

The work had been interesting; it had cost me something in time and money, but it had been profitable in experience. In New York I gave the owner the bar of pure gold I had extracted: for it was his. He gave me a ten-dollar-gold piece for my trouble: there was no reason why he should give anything.

I went away prouder of that gold piece, as the first money I had earned professionally, than of later fees of thousands of dollars.

My stay in Virginia had also a human interest: it brought me into contact with some neighboring families and with the negroes. I remember one elderly lady who was, I think, a niece of Chief Justice Marshall. I saw in her a type of the cultured Southern woman. The negro mechanic interested me much by his search for knowledge about the outside world. One day he asked:

"Mas' Pumpelly, you done bin in Rome?"

"Yes, Jim, I have been in Rome several times," I answered.

"You done see 'em throw de Christians to de lions?" he asked eagerly.

Here, too, I had a little experience that developed to me a new point of view. The day was warm, and I was sitting dreamily by a brook in the woods. A little turtle lay temptingly near me in the water and I caught him and laid him on his back. For some time I was amused by his struggles in trying to turn over. I teased him in different ways till at last he lay quiet. Then as I watched the helpless, harmless little thing, it occurred to me that the fun was all on one side. A wave of shame swept over me: for I was now a man; I had lived twenty-two years without having ever realized the meanness of tormenting lower animals. I had been in the habit of shooting them for pleasure, and of carrying the catch of fish, strung alive, on a forked twig run through the gills, without realizing the cruelty of it all. I had never come nearer to such a feeling than once, a few years before in Europe. I was walking in the country with a girl to whom I was much attracted by her looks and manner. There had been a rain, and there were many slugs—shell-less snails—crawling on the road. When I saw that that lovely girl was deliberately treading on one slug after another, I had a revulsion of feeling regarding her. But this had been because of the indelicacy of the act, not its relation to the feelings of the snails.

When I looked on the turtle, I was ashamed at the lateness of my awakening. I took the little animal tenderly in my hand, begged its pardon, and placed him gently back in the water.

Since that time I have never shot game, nor caught fish except such as were needed for food in camp; and have always put them at once out of misery.

During this winter I spent several weeks visiting my uncle and aunt, Mr. and Mrs. Harmon Pumpelly, in Albany.

In Albany, I came to know Professor Hall, the great paleontologist, and Colonel Jewett, the Curator of the Geological Museum—an acquaintance that lasted, with both, through their lives. In the case of Colonel Jewett, this meeting was one of the critical incidents that determined my subsequent career. Mr. Wrightson, of Cincinnati, had asked Colonel Jewett to recommend a geologist to develop some mines in Arizona. This led to my appointment after some correspondence and a visit to Cincinnati.

It led also to a wild life of adventure, and to a pretty thorough education in human nature gained from contact with men of varied races and of every shade of character from the stalwart pioneer of the frontier to the gambler, the bully, and the frank cut-throat. In a general way, Mr. Wrightson warned me of the nature of the environment into which my acceptance of the post would lead me, but his description was, compared with the reality known later, like the faded print of a poor photograph. However, the prospect only strengthened my wish to go.

In the affectionate parting from my parents, my dear mother said:

"My dear boy, remember always to do your whole duty towards your employers."

In St. Louis on the 8th of October, 1860, I bought my ticket "from Syracuse to Tucson, per Overland Mail Stage, Waybill No. 7 of this date." I went by rail to Jefferson City, then the westernmost end of the railroad in Missouri. This finished the first, and in point of time the shortest stage in a journey, the end of which I had not even tried to foresee.

I secured the right to a back seat in the overland coach as far as Tucson, and looked forward, with comparatively little dread, to sixteen days and nights of continuous travel. But the arrival of a woman and her brother dashed my hopes of an easy journey at the very outset, and obliged me to take the front seat, where, with my back to the horses, I began to foresee coming discomfort. The coach was fitted with three seats, and these were occupied by nine passengers. As the occupants of the front and middle seats faced each other, it was necessary for these six people to interlock their knees; and there being room inside for only ten of the twelve legs, each side of the coach was graced by a foot, now dangling near the wheel, now trying in vain to find a place of support. An unusually heavy mail in the boot, by weighing down the rear, kept those of us who were on the front seat constantly bent forward, thus, by taking away all support from our backs, rendering rest at all times out of the question.

My immediate neighbors were a tall Missourian, with his wife and two young daughters; and from this family arose a large part of the discomfort of the journey. The man was a border bully, armed with revolver, knife, and rifle; the woman, a very hag, ever following the disgusting habit of dipping—filling the air, and covering her clothes with snuff; the girls, for several days overcome by seasickness, and in this having no regard for the clothes of their neighbors;—these were circumstances which offered slight promise of pleasure on a journey which, at the best, could only be tedious and difficult.

For several days our road lay through the more barren and uninteresting parts of Missouri and Arkansas; but when we entered the Indian Territory, and the fertile valley of the Red River, the scenery changed, and we seemed to have come into one of the Edens of the earth. Indeed, one of the scenes, still bright in my memory, embraced the finest and most extensive of natural parks.

Coming suddenly to the brow of a high bluff we found that we had been traveling over a table-land, while beneath us lay a deep and widely-eroded valley, the further limits of which were marked by distant blue hills. The broad, flat bottom-land was covered with a deep-green carpet of grass, and dotted, at intervals of a few miles, with groves of richly-colored trees. As a work of Nature it was as much more beautiful than the finest English park, as Nature had spent more centuries in perfecting it than the nobleman had spent days.

The fertile country reserved for the Indians was only partially cultivated by them. Although considerable success had attended the attempts to elevate these tribes, the ultimate result of the experiment was by no means certain. The possession of negro slaves by the Indians could not but be attended by even greater evils than the use of this labor among the white population.

Before reaching Fort Smith every male passenger in the stage had lost his hat, and most of the time allowed for breakfast at that town was used in getting new headgear. It turned out to be a useless expense, however, for in less than two days we were all again bareheaded. As this happened to the passengers of every stage, we estimated that not less than fifteen hundred hats were lost yearly by travelers for the benefit of the population along the road.

After passing the Arkansas River, and traveling two or three days through the cultivated region of northeastern Texas, we came gradually to the outposts of population. The rivers became fewer, and deeper below the surface; the rolling prairie-land covered with grass gave way to dry gravelly plains, on which the increasing preponderance of cacti, and the yucca, warned us of our approach to The Great American Desert. Soon after our entrance into this region we were one morning all startled from a deep sleep by the noise of a party coming up at full gallop, and ordering the driver to halt. They were a rough-looking set of men, and we took them for robbers until their leader told us that they were "regulators," and were in search of a man who had committed a murder the previous day at a town we had passed through.

"He's a tall fellow, with blue eyes and red beard," said the leader. "So if you've got him in there, driver, you needn't tote him any further." As I was tall, and had blue eyes and a red beard, I didn't feel perfectly easy until the party left us, convinced that the object of their search was not in the stage.

The monotony of the route across the desert was somewhat varied by the immense republics, as they are commonly termed, of prairie dogs. The plains inhabited by these animals were covered by the low mounds raised over the entrance to their burrows, and separated from each other by a distance of only a few yards. At some distance from us, ahead and on either side, thousands of them were visible, each one squatting on the top of a mound, and regarding us with the most intense curiosity. As we came nearer, one after the other suddenly plunged its head into its burrow, and, after wagging its fat body for an instant, disappeared altogether. Here and there a solemn owl, perched at the mouth of the burrow, or a rattlesnake at the entrance, basking in the sun, showed that these dwellings were inhabited by other occupants than their builders. One can scarcely picture a more desolate and barren region than the southern part of the Llano Estacado between the Brazos and the Pecos rivers. Lying about 4,500 feet above the sea, it is a desert incapable of supporting other plant or animal life than scattered cacti, rattlesnakes, and lizards. Our route, winding along the southern border of this region, kept on the outskirts of the Comanche country.

Here we were constantly exposed to the raids of this fierce tribe, which had steadily refused to be tamed by the usual process of treaties and presents. They were committing serious depredations along the route, and had murdered the keepers at several stations. We consequently approached the stockade station-houses with more or less anxiety, not knowing whether we should find either keepers or horses. Over this part of the road no lights were used at night, and we were thus exposed to the additional danger of having our necks broken by being upset.

The fatigue of uninterrupted traveling by day and night in a crowded coach, and in the most uncomfortable positions, was beginning to tell seriously upon all the passengers, and was producing in me a condition bordering on insanity. This was increased by the constant anxiety caused by the danger from Comanches. Every jolt of the stage, indeed any occurrence which started a passenger out of the state of drowsiness was instantly magnified into an attack, and the nearest fellow passenger was as likely to be taken for an Indian as for a friend. In some persons, this temporary mania developed itself to such a degree that their own safety and that of their fellow travelers made it necessary to leave them at the nearest station, where sleep usually restored them before the arrival of the next stage, in the following week. Instances had occurred of travelers in this condition jumping from the coach, and wandering off to a death from starvation in the desert.

Beyond the Pecos River the scenery became more varied. The route lay over broad plains, where the surface sloped gently away from castellated and cliff-bound peaks. Here, from a hundred miles away, we could see the grand outlines of the Guadalupe Mountains, planted like the towers and walls of a great fortress, to render still more difficult the approach to the great wastes lying to the north and east.

Over the hard surface of this country, which is everywhere a natural road, we frequently traveled at great speed, with only half-broken teams. At several stations, four wild horses were hitched blindfolded into their places. When everything was ready, the blinds were removed at a signal from the driver, and the animals started off at a runaway speed, which they kept up without slackening, until the next station, generally twelve miles distant. In these cases the driver had no further control over his animals than the ability to guide them; to stop, or even check them, was wholly beyond his power; the frightened horses fairly flew over the ground, never stopping till they drew up exhausted at the next station. Nothing but the most perfect presence of mind on the part of the driver could prevent accidents. Even this was not always enough, as was proved by a stage which we met, in which every passenger had either a bandaged head or an arm in a sling.

At El Paso we had hoped to find a larger stage. Being disappointed in this, I took a place outside, wedged between the driver and conductor. The impossibility of sleeping had made me half-delirious, and we had gone but a few miles before I nearly unseated the driver by starting suddenly out of a dream.

I was told that the safety of all the passengers demanded that I should keep awake; and as the only means of effecting this, my neighbors beat a constant tattoo with their elbows upon my ribs. During the journey from the Rio Grande to Tucson my delirium increased, and the only thing I have ever remembered of that part of the route was the sight of a large number of Indian camp-fires at Apache Pass. My first recollection after this, is of being awakened by the report of a pistol, and of starting up to find myself in a room, where a number of people were gambling. I had reached Tucson, and had thrown myself on the floor of the first room I could enter. A sound sleep of twelve hours had fully restored me, in both mind and body.

I got up. No one noticed me. I looked on a novel scene. There were two or three men neatly dressed, and with delicate hands, who were dealing out cards. Their bearing was quiet and easy. The rest were a rough-looking lot of white men with unclean beards, two of them in a quarrel that might bring more shooting.

I walked out into the brilliant sunlight. Houses built of sun-dried mud bordered a vista that opened upon a vast, yellow-brown, desert plain; and, beyond, a mighty barren range of wonderfully sculptured mountain rose with a lofty majesty that cast its glamour over the whole scene.

I had no remembrance of having eaten for a week. So when I saw some men hurrying to a house where a man with a revolver stood ringing a bell, I turned to enter. The man stopped me.

"Fifty cents first!" he said, holding out a hand. There were jerked beef, and beans, and some things they called bread and coffee. You ate what was pushed to you; the memory of that pistol acted as a persuasion.

The curtain had risen on a new act in the drama of my life; Arizona was before me with its wide range of types of man and Nature.

Here I met with Lieutenant Bernard Irwin of the 7th U. S. Infantry (now General Irwin), who helped me to pass the time till I should start for Tubac.

My first thought was to make the necessary preparations for the journey to Tubac and the Santa Rita. Having soon succeeded in securing a place in a wagon which was to start

SANTA RITA MOUNTAINS, SEEN FROM LIVE OAKS ON GROSVENOR CLIFFS

IN THE GUNSIGHT MOUNTAINS NEAR AJO

in a day or two, I gave up the interval to seeing the little of interest in the town and neighborhood.

It was here that I first saw the effect of an extremely dry and transparent atmosphere. The sculpturing of the Santa Rita Mountains are distinctly visible from Tucson, a distance of more than thirty miles; and in the very dry season, as at the time of my visit, the tall pines on the summit could be clearly distinguished standing out against the sky.

Accustomed to judge of heights and distances in the atmosphere of the Eastern states and Europe, I did not hesitate, on being first asked to guess at the distance, to place it at less than ten miles.

The most interesting objects of curiosity in the town were the two great masses of meteoric iron which have been mentioned by the various travelers who have passed through this region. These had long lain in a blacksmith shop, serving as anvils, and nothing but the impossibility of cutting them had saved them from being manufactured into spurs, knives, etc. The largest mass, half-buried in the ground, had the appearance of resting on two legs; but, when removed, in 1860, it was found to be a ring of iron, varying from thirty-eight to forty-nine inches in its external diameter, and from twenty-three to twenty-six and one-half inches in its internal one, and weighing about 1,600 pounds. It lies now in the Smithsonian Institution at Washington.

Leaving Tucson early in the morning, we ascended the valley of the Santa Cruz by a sandy road. At first we passed a few patches of land cultivated by irrigation, but soon these were succeeded by the broad sandy plains characteristic of the region and relieved from absolute barrenness only by a great number of acacia trees, and a still greater abundance of cacti, of many and large varieties.

A few miles brought us to San Xavier del Bac, an ancient mission founded by the Jesuits for the conversion of the

Papago Indians. The mission building is still in tolerable preservation, with all the interior ornamentation and objects of worship of the chapel. The successors of the zealous founders had long since disappeared, but the Indians, with a feeling of mixed pride and superstitious reverence, guarded it according to their ability as a sacred legacy.

We passed several stock ranches, situated on the Santa Cruz River at points where all the water did not run underground. The houses had generally only one room, were built of sun-dried mud, and roofed with branches of the *mesquite* covered with a layer of mud.

We camped late at night about fifteen miles north of Tubac.

Early the next morning we were startled from sleep by the approach of a wagon, which turned out to contain the superintendent of the Santa Rita mines, Mr. H. C. Grosvenor, and a friend, who had come out to meet me.

As we continued our journey southward, the character of the country gradually changed.

For a short distance the bed of the Santa Cruz was filled with running water, and its banks supported a grove of large cottonwood trees, giving a welcome shade from the hot sun, while a heavy growth of grass covered the flat.

On our left rose the high, double-peaked Santa Rita, the highest of the mountains of Arizona south of the Gila River. A bold, precipitous spur, the Picacho del Diabolo, juts out into the valley, a promontory of naked rock, and a favorite post from which the Apache watched for the opportunity to make a raid.

Crossing the Santa Cruz, we passed the *Canoa,* a stockade house used as an inn, a place destined to see a massacre in the following year. A further ride of fourteen miles brought us to the old Spanish military post of Tubac. The restored ruins of the old village were occupied by a small mixed population of Americans and Mexicans, while, near by, a hundred or more Papago Indians had raised a temporary camp of well-built reed lodges.

After breakfasting we left Tubac, and traveling eastward about ten miles, now ascending the dry bed of a stream, now crossing the gravelly *mesa,* we reached the *hacienda* of the Santa Rita mines, my destination.

At the time of my visit Arizona comprised simply the tract of country known as the Gadsden Purchase, having been bought of the Mexican Government, through our Minister, Mr. Gadsden, for $10,000,000, to serve as a southern route for a railroad to the Pacific.

This region is crossed by parallel granite ridges, running generally north or northwest, and rarely more than sixty miles long and ten to thirty miles apart. The intervals between the mountains are occupied by plains rising gently from the center to the ridges on either side, and extending around the ends of these. Thus the whole country is a great plain, out of which rise the many outlying *sierras* of the Rocky range, as islands from the sea. Of these peaks probably none reach a height of 10,000 feet above the ocean, while the elevation of the plains increased gently from the level of the Gulf of California to about 6,000 feet at the divide between the Gila and Rio Grande.

In western Arizona and northwestern Sonora, over a belt reaching nearly a hundred miles from the Colorado River, the fall of rain is very small, and has not been sufficient to cut water-courses in the loose deposit of the plains. But further east, as we approach the higher land and the Santa Rita Mountains, the annual precipitation is greater, and broad valleys with canyons are everywhere cut deep into the plains, leaving these last to be represented only by the *mesas* or terraces remaining between the valley and the *sierras* on either side.

Properly speaking, the whole region in question has no rivers excepting the Gila, the bed of which above its junction with the Salinas, during the season of high water, is navigable with small flat-bottom boats. The little rain that falls over a vast region fills the water-courses for only a few hours, after which what is not evaporated sinks, to follow its underground course through the loose material of the stream bed.

Where the water collects during the rainy season in natural rock tanks, or in clayey depressions in the soil, it quickly evaporates, leaving a crust of soda, lime, and potash-salts, which, spread as they often are over large areas of the desert region, aid in heightening the effect of the mirage.

Climatic influences have given a marked and peculiar character to the vegetation of this part of the continent. Toward the coast of the Gulf of California the plains are barren and arid deserts, where the traveler may ride hundreds of miles without seeing other plants than dry and thorny cacti. Granite mountains bordering these deserts are even more awful in their barrenness; neither tree, nor cactus, nor soil can be seen on their sides. The only supplies of water to be found, over an area of many thousands of miles, are in the mountains at a few points where the rains had left in natural tanks enough to last for a few weeks. During the rainy season, which sometimes failed, shallow pools were formed in slight depressions on the plains, to be exhausted after a few days' exposure to the fierce rays of the sun.

Further from the coast, the plains begin to show more vegetation. Gradually appear the *palo-verde,* the *mesquite,* and a greater variety of cacti, and on the hills scattered *saguaras* (the giant Cereus). Still further east appear *mesquite* and *palo-verde,* and gigantic columns of the *saguara,* covering the lowlands and foot-slopes of the Baboquiveri Range. Between the mountains and the peaks of the Santa Rita the character of the country changes; the plains are cut by deep valleys, which receive from mountain canyons the streams that have done about all of the valley cutting in the region. All that here remains of the original plains are the *mesas,* or table-lands, lying between the river and the *sierras.*

These *mesas,* consisting of loose gravel and sand, retain much of the desert appearance, but they are clothed with a hardy grass and stunted acacias. In many of the valleys the bottom-lands have an extensive growth of bean-bearing *mesquite,* and large cottonwood trees, and in some places fine groves of ash shade the beds of streams in the neighborhood of running water.

On the hillsides, above the level of the *mesas,* are scattered the dwarf live-oaks peculiar to the country, the trees varying from twelve to twenty-five feet in height, and presenting the appearance of old apple orchards. Here, too, occur the yuccas and aloes with their tall flower-bearing stems. Higher up the mountain sides the oaks are mingled with cedars, and at an elevation of about 6,000 feet above the sea begin the few pine forests of this part of the Rocky Mountains.

The abundant growth of grass, and the mildness of the winters, render central Arizona a country well adapted to grazing. But away from the Gila River, excepting at scattered points, there is no land suitable for cultivation, owing to the absence of water for irrigation. On the extensive bottom-lands of the Gila the ruins of long-fallen towns and of large aqueducts, and widely distributed fragments of pottery, indicate the former occupation of the region by an ancient and industrious population, related probably to the scattered remnants of the Moqui race, who are fast dying out in their strongholds on the high table-lands of the Colorado River, their last refuge from the more savage tribes by which they have been surrounded. The widely-spread traces of their arts, and the ruins of their many-storied buildings, sometimes built of stone, prove that this race once cultivated great areas of country which are now desert wastes.

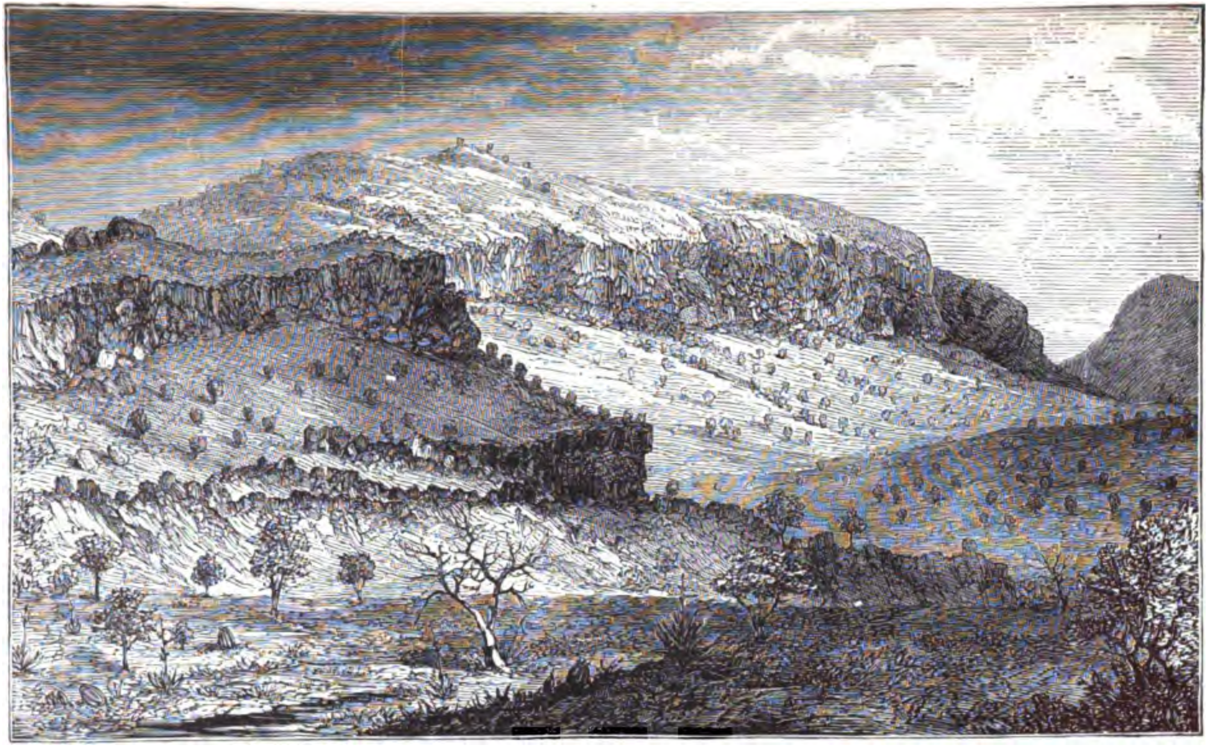
CHAPTER XVI

LIFE AT SANTA RITA

THE *hacienda* of the Santa Rita mines, which was to be my home, lay in a broad and picturesque valley, shut in on the north by the lofty range of the Santa Rita Mountains, and on the south by high and castellated cliffs of dark porphyries and white tufa. Through the open valley, toward the west, the high hornlike peak of the Baboquiveri Mountain, its outline sharply cut on the clear sky, closed a vista over fifty miles of intervening country. The Santa Rita valley consists mainly of mesa-land, its outline broken by jagged rocks rising like islands from the plain, or by the round-backed spurs from the mountains. The surface of these spur hills is roughened by a network of many mineral veins.

The drainage from the mountains passes through the valley in a deeply-cut canyon, containing here and there a little water, while throughout the rest of the valley, with the exception of two or three small springs, water could be had only by digging. The tree growth was of scattered live-oaks and bean-bearing *mesquite.* A few cottonwoods occurred along the generally dry water-courses. The *mesa* is the home of a great variety of cacti, the yucca, and the *fouquiera ocotilla,* a resinous shrub sending up from the root a large number of simple stems, covered with sharp thorns, and in the season bearing beautiful flowers.

The whole valley and its inclosing hills were covered with abundant grass of several kinds, which, while of great importance to the country, gave it a parched appearance. The peculiar effect of this vegetation was heightened by the



Santa Rita Valley

From a sketch by H. C. Grosvenor

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abundance of the short columnar fish-hook cactus, the broad thorn-pointed leaves of the Spanish bayonet, and the tall lancelike stem of the century plant, bearing, in season, its gracefully pendant flowers.

The scenery of Arizona, dependent in great part on its climate and vegetation, is unique, and might belong to another planet. No other part of the world is so strongly impressed on my memory as is this region, and especially this valley. Seen through its wonderfully clear atmosphere, with a bright sun and an azure sky, or with every detail brought out by the intense light of the moon, this valley has seemed a paradise; and again, under circumstances of intense anxiety, it has been a very prison of hell.

A few days after my arrival at the mines, in company with Mr. Grosvenor, I started on a journey to Fort Buchanan, twenty-two miles distant. Our route lay in part through a rocky and gloomy defile, along one of the war trails of the Apaches leading into Sonora. From the countless tracks in the sand it was evident that a successful party of raiding savages had returned with a large drove of horses and mules.

A few miles short of the fort we stopped at the house of an Arkansas family, one of the daughters of which had escaped most remarkably a few months before from Indian captivity and death. She had been married the previous year, and had accompanied her husband to the Santa Rita Mountains, where, with a party of men, he was cutting timber. While alone in the house one day she was surprised and taken off by a small band of Apaches, who forced her to keep up with them in their rapid journey over the mountain ridges, pricking her with lances to prevent her falling behind. The poor woman bore up under this for about ten miles, and then gave out altogether, when the savages, finding they must leave her, lanced her through and through the body, and, throwing her over a ledge of rocks into a snow-bank, left her for dead. She was soon conscious of her condition, and, stopping the wounds with rags from her dress, began her journey homeward. Creeping over the rough country, and living on roots and berries, she reached her home after several days. I was told that the first thing she asked for was tobacco.

Continuing our journey through the valley of a tributary of the Santa Cruz, we reached Fort Buchanan. This fort, like most of our military establishments in the Rocky Mountains, consisted simply of a few adobe houses, scattered in a straggling manner over a considerable area, and without even a stockade defense. What object the Government had in prohibiting the building of either block or stockade forts I could never learn. Certainly a more useless system of fortification than that adopted throughout the Indian countries cannot be well imagined. The Apaches could, and frequently did, prowl about the very doors of the different houses. No officer thought of going from one house to another at night without holding himself in readiness with a cocked pistol. During the subsequent troubles with the Indians, when the scattered white population was being massacred on all sides for want of protection the Government was bound to give, the commandant needed the whole force of 150 or 200 men to defend the United States property, while with a better and no more costly system of fortification this could have been accomplished with one-quarter that number, and the lives of many settlers saved by the remaining force.

The next day, after riding out with Lieutenant Evans to see some springs which were forming a heavy deposit of calcareous tufa, we started on the return journey. We had passed a little distance beyond a thicket about 500 yards from the fort when we met a man driving a load of hay. In a few minutes, hearing the report of a gun, we looked back; but having made a turn in the road, and seeing nothing, we rode on our way. Several days afterward I learned that the man had been killed by Indians hidden in the thicket, and that the shot we heard was the fatal one. The Apaches were probably few in number, as they did not attack us.

The victim was a young man from the Southern states and a letter in his pocket showed that he had been to California to free and place in safety a favorite slave. On his way home, finding himself out of money, he had stopped to earn enough to carry him through, when he died the common death of the country. Four years later my successor, Mr. W. Wrightson, and Mr. Hopkins were killed at this same thicket by Apaches, who afterwards massacred the few soldiers left to garrison the fort.

The valley of Santa Rita had been, it is said, twice during the past two centuries the scene of mining industry; and old openings on some of the veins, as well as ruined furnaces and *arastras,* still existed. But the fierce Apaches had long since depopulated the country, and, with the destruction of the great Jesuit power, all attempt at regular mining ceased.

The object of the Santa Rita Company was to reopen the old mines, or work new veins, and extract the immense quantities of silver with which they were credited by Mexican tradition. In Mexico, where mining is the main occupation of all classes, tales of the enormous richness of some region, always inaccessible, are handed from generation to generation, and form the idle talk of the entire population. The nearer an ancient mine to the heart of the Apache stronghold, the more massive the columns of native silver left standing as support at the time of abandonment. It is not strange, therefore, when we consider how easily our people are swindled in mining matters, that in those times we found them lending a willing ear to these tales, and believing that "in Arizona the hoofs of your horse throw up silver with the dust."

A number of veins had been found and slightly opened. Most of them carried argentiferous copper ores, some had galena rich in silver, and one had native silver. They were, however, thin veins. The problem was to explore them in hope of their enlarging into *bonanzas*. The company owned a large old Spanish grant covering extensive mineral possibilities, but they had but little capital. It was necessary to work up all the ore found during exploration. Then, too, a method had to be decided on for reducing the peculiar varieties of ore.

My education had been connected with processes for working on a large scale in furnaces built with fire-proof materials, and using elaborate machinery. The country offered no fireproof materials. A thousand fire bricks had, indeed, been sent by wagon from the East, but the Comanches in Texas had killed the driver, burned the wagon and stolen the horses. We had no machinery. In vain I studied carefully Kerl's *Metallurgie* for methods used in out-of-the-way places. All were planned for elaborate methods of getting the greatest possible yield, and all demanded materials and machinery not open to us.

I realize now how valuable it would have been had Freiberg given a course on the simple methods of the ancients as described by Agricola in the sixteenth century, and by Pliny in the beginning of our era.

As it was, I was thrown back on such knowledge as I had of the fundamental principles of metallurgy. I found that the Mexicans used amalgamation for certain ores, and smelting for others; the greater part of ours were not well adapted to amalgamation, and we had no quicksilver. But in smelting they built furnaces of mud.

I took differential samples throughout the workings, on the veins, to determine the distribution of silver. Then I had the ores classified and, in the Mexican manner, broken to small size by hammers; and I assayed, by the blowpipe method, samples from the different piles.

We built furnaces, for both smelting and cupelling, of sun-dried mud bricks, much like those of the Mexicans.

Fortunately we had a large blacksmith's bellows. We had also an intelligent American carpenter, and, together, we rigged up a method of working the bellows by horsepower for blowing air into the furnace.

We made good charcoal from the *mesquite acacia.*

The pure minerals were very rich, the *fahlores* ranging 400 to 1,200 ounces silver per ton, and the galena from 80 to 170 ounces.

As prepared for smelting, the silicious fahlores averaged 176 ounces, and the lead ores 86 ounces.

My charges were made up of definite proportions of silicious *fahlore,* galena, cupel bottom, ironstone, and litharge, the charge weighing about 350 pounds. The silver concentrated in the lead and was extracted from it by cupelling.

We had, however, not enough ore to meet expenses, for the veins were thin, and our work was mere prospecting.

We were a small group at the Santa Rita. Grosvenor, the chief, proved himself a strong and lovable character, and was an artist and an engraver on wood.

Mr. S. Robinson, the bookkeeper, had studied medicine under Dr. Oliver Wendell Holmes, and had settled in Cincinnati. Like Grosvenor, and myself, Robinson had succumbed to the lure of the golden desert.

Our cook, named Schmidt, I think, was a German, a very poor cook, but a brave man.

These, with myself, are the *dramatis personæ* of the tragedy of the Santa Rita.

I look back on my life in the early months of my stay there as full of quiet charm and interest. In the semi-desert character of its peculiar plant and tree life, like that of all Arizona, south of the Gila, it was in most respects unique among the regions of the world. The weirdness of the scenery by day, and yet more weird in the strong contrasts of the brilliant Arizona moonlight; the character of the outlaw American and Mexican inhabitants, and the human background of savage Apaches, all lent an undertone of adventure and of danger.

There were some forewarnings which lent excitement to the life. The population of Arizona, excepting a few widely separated American ranch owners and miners, was made up of outlaws. There were refugees from the vengeance of the San Francisco Vigilance Committee, and from the States, and there were escaped convicts from Australia. The labor element consisted of Mexicans, largely outlaws from Sonora. Back of these were the ever-present, rarely visible Apaches. Each of these elements was charged with bolts that might at any moment, at any place, strike from a clear sky. When I arrived at the mine the blacksmith, named Rogers, was an escaped convict from Australia. He was in the habit of having chills, and would come shaking to Grosvenor for quinine, which he could only take in a cup full of whiskey. His chills became so frequent that we grew suspicious. So one day the chief refused him his dose and told him he only wanted the drink. Rogers sprang across the room at Grosvenor with a drawn knife. Grosvenor parried the blow and knocked the man down, and we disarmed him.

There was no semblance of law or of constituted civil authority in Arizona. Every man was judge, jury, and sheriff; back of him was the quickly formed Vigilance Committee. I said Rogers must be hung at once. On the other hand Grosvenor made him stand up, and gave him fifteen minutes to be off the property.

A few days later one of our number walking in Tubac was hailed from a house by Rogers, who asked him in. Rogers opened a box and drawing out a string of human ears said: "Them's eighteen pairs of men's ears. I've sworn I'll make

[illegible]

[illegible] Mexicans [illegible]

[illegible] He [illegible]

[illegible] that we [illegible]

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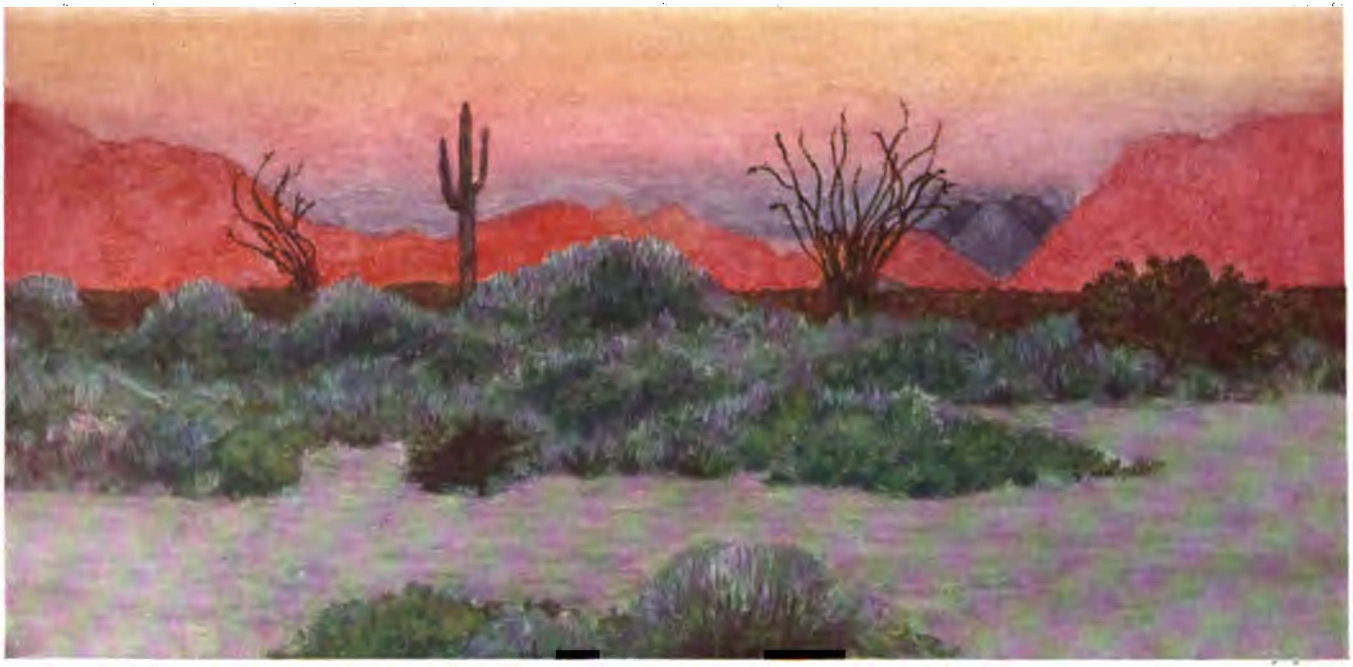


Sunset on the Yuma Desert

From a water-color by Margarita Pumpelly Smyth, 1915

it twenty-five, and two pairs is comin' from your mine; *sabe?*"

There was a sequel. Rogers had gotten an influence over a young man from the East who had gone to the bad. Together they waylaid and killed a man to get his horse and arms. This might have passed unnoticed if the victim hadn't been more popular than the two. Since he was, Rogers and his pal made off to Sonora. After some time a Mexican brought into Tubac a letter addressed: "To the Honorable *Alcalde* (Mayor) of Tubac." There being no *Alcalde,* honorable or dishonorable in Tubac, nor any other authority of any kind, the first-comer opened the letter. It was from the *Alcalde* of the city of Chihuahua. It said that two Americans had been seen together on horseback approaching the city, and since only one of them had entered leading a riderless horse, and carrying two guns, a search was made, and the body of the other man, shot in the back, was found in the brush. They were holding the man, who called himself Rogers, in jail, and they asked where they should deliver him. No one answered, because no one wanted Rogers.

Some time later word came, in a Texas paper I think, that a man, by the name of Rogers, had been found at the point of death by an old Mexican near El Paso del Norte across the river from Texas. The old man and his wife had taken Rogers into their house, and had nursed him back to health. In the night Rogers had killed the old man and his wife and daughter, to get the three or four dollars they had saved. The neighbors had tracked him, hung him up by his heels, and roasted him with a fire under his head.

Rogers was one of the very few white men that I have met through a life of ample experience of human nature in lawless environments who were thoroughly and meanly bad to the core.

There were two brothers from the East who were opening a mine, San Pedro, several miles beyond Fort Buchanan. They had with them another American and a German mining engineer named Bronkow, and a number of Mexican workmen. One of the brothers went one day to the fort for supplies and returned to the mine late at night. In hunting for matches he stumbled over a man lying on the floor. Stooping down he put his hand into a pool of blood. In the dark he made his way into another room and, in his excitement, fell over another body.

Not finding matches he mounted his horse and hurried to the fort, distracted by the uncertainty as to whether his brother was one of the dead.

He reached the fort at daybreak. A number of soldiers, and Grosvenor, who happened to be at the fort, returned to the mine with him. They found that the bodies in the house were the brother and the other American. The mining engineer, Bronkow, was missing, but after a long search he was found in the bottom of a shaft, where he lay dead with a long rock drill run through his body.

The Mexicans were gone. They had killed the Americans and, after robbing the house, had escaped to Sonora with the horses.

The murdered men were all friends of Grosvenor. He brought away the miner's compass and a chemical thermometer as a memento of his German friend.

There was a young Easterner, a "tenderfoot" like me. We had heard so much of the Apaches ever since our arrival, and of their bloodthirstiness, that we were longing to meet them, for each of us had a rifle made specially for such an emergency. Mine had two barrels, one for a large ball and one for a small one; incidentally it only weighed something less than eighteen pounds.

We two had come in to dinner, having hitched our horses to the door posts. Suddenly a Mexican rushed in shouting:

"Los Apaches, los Apaches, they have stolen horses."

We were delighted. Here was our chance. We would overtake and shoot those Apaches. Nothing more easy.

In an instant we were in the saddle. About a mile off we saw two horses being driven off by two Indians. As we gained on them slowly we could see that the Apaches were really running with a peculiar swaying movement of the body. They were naked, their hair was streaming out behind.

By the time we were within less than two hundred yards of them the Indians and horses had disappeared beyond the dense thicket that bordered the course of a stream. Then suddenly the whole face of that thicket was alive with naked, painted Indians. They yelled and flourished lances and bows.

Our terrified horses stopped short and plunged, nearly unseating us. They wanted to go home as quickly as possible. So, too, did each of their riders, but each one of us was afraid of being thought a coward by the other. So, having heard that the proper thing was to dismount and shoot, holding the horse with your arm through the bridle, we jumped off and tried to take aim. We pulled the triggers; both missed fire.

The Apaches jeered; they jumped up and down slapping their backsides. It was our salvation that we were able to vault into our saddles instead of mounting by the stirrup.

As we started off there came a shower of spent arrows after us.

Those Indians could have killed us easily had they wished, but the Apaches had not as yet been roused to a just resentment for treachery on the part of our troops.

I think they were moved by a sense of humor, and by the apparent bravery of the two tenderfeet; for of course they didn't know why we hadn't run away at first.

This was a valuable lesson. It gave me respect for the Indian, and some insight into their nature. I felt humbled by the knowledge that we owed our lives to the sense of humor on the part of an enemy we had so casually thought of killing and, let me confess it, of scalping too.

Not long after this three mounted Apaches stole some loose horses. We were in quick pursuit, four of us, when we came suddenly on thirty or forty unmounted Indians. They were running over a wholly open area covered with rocks one or two feet in diameter. The ground sloped gradually away from us, and on each side to ravines.

As soon as we saw them, they instantly disappeared from sight. Two or three musket balls whizzed past us, and the smoke showed that the enemy was lying flat, hidden behind the rocks. We fired at the places the smoke came from, and waited a few minutes to spot a head. Then we charged. Not an Apache was there. They had wriggled away under cover of the rocks into the ravines and off. Their tactics were masterly. They had evidently fired to concentrate our attention on one place, while they escaped.

Early in April, I think, we had bought forty head of cattle. Because they were new to the place we put them into one of the *corrals,* and turned thirty or more of our horses out, knowing that they would stay near the house. Everything seemed all right.

That evening, while we were at supper, a skunk boldly entered the room. We watched it with great respect while it passed by the table, hoping it would go out by the door beyond. But it walked into the large room that served for stores and office. At the far end the animal hid itself under a pile of bags of flour that stood on boards raised about six inches above the earthen floor. With a candle I located the skunk. I fired and killed; but too late, the enemy shot first.

How little we knew what that shot was to cost us! Our thoughts were occupied with the new aspect of the atmosphere.

I dragged out the skunk and, holding it by the tail, went out and hurled it forth to enliven the night air.

Then I placed under the pile of flour a saucer filled with materials for slow generation of chlorine gas. The effect was magical; the room filled with the fragrance of a really delicate perfume. We went to bed quite happy.

The light of the just rising moon showed one of the horses standing asleep in front of my window.

Looking out at daybreak the first thing we saw was a thin layer of snow covering the ground. Then we saw the tracks of several Apaches. Not a horse. A fine watch dog lay chained in his kennel at the gate of the *corral,* not fifty feet from the house. He was still there and alive.

The dead skunk lay at the very door of the kennel; it had landed under the nose of the dog, obliterating the odor peculiar to the Apache.

Snow was still falling very gently, and we saw that the tracks could be hardly an hour old.

The Indians had all our horses, except two or three that were away, so we set out on foot in pursuit. The horse tracks were plain, and we followed them easily for several miles, but they showed that the Indians were now mounted, and going rapidly. My heavy rifle grew heavier and heavier till I lay down exhausted. The rest of the party returned soon, with an old horse that had given out and been abandoned.

The skunk had had his revenge; the Apaches had our horses.

CHAPTER XVII

TROOPS ORDERED EAST AND THE APACHE TERROR

THE incidents I have given were mere omens of what was to come.

Soon after the loss of our horses, there came word that the troops were ordered to abandon the country and go to the East to be employed in the war.

There were two bodies of these, one of infantry at Fort Buchanan, about twenty miles from us, and one of dragoons sixty or seventy miles away. These troops were the only protection that stood between us and the Apaches.

The news of the impending withdrawal caused great excitement among the small number of settlers who were scattered over the country.

To make the matter worse, the military began an uncalled-for war with the Apaches. In April, I believe, some Indians, of what tribe was not known, carried off a cow and a child belonging to a Mexican woman living with an American. Upon the application of the latter, the commandant at Fort Buchanan despatched a force of seventy-five men to the nearest Apache tribe. The only interpreter attached to the expedition was the American who was directly interested in the result.

Arriving at Apache Pass, the home of the tribe, the lieutenant in command raised a white flag over his tent, under the protection of which six of the principal chiefs, including Cochese, great chief of the Apache nation, came to the camp, and were invited into the tent.

A demand was made for the child and cow, to which the Indians replied, truly or falsely, that they had not been stolen by their tribe.

After a long parley they were seized. One of the number, in trying to escape, was knocked down and pinned to the ground with a bayonet. Four others were bound, but Cochese, seizing a knife from a cot, slashed his way through the canvas and escaped, with three bullets in his body, fired by the outside guard.

And this happened under a United States flag of truce!

At this time three of the most powerful tribes of the nation were concentrated at Apache Pass, and, when Cochese arrived among them, a war of extermination was immediately declared against the whites.

The next day they killed some Mexican prisoners, and in retaliation the five chiefs were hung in sight of their people. Our troops, after being badly beaten, were obliged to return to the fort.

In the meantime orders came for the abandonment of the territory by the soldiers. The country was thrown into consternation. The Apaches began to ride through it rough-shod, succeeding in all their attacks. The settlers, mostly farmers, abandoned their crops, and with their families concentrated for mutual protection at Tucson, Tubac, and at one or two ranches, and at a distant mine.

When, in addition to this, the news came of the beginning of the rebellion in the East, we decided that, as it would be impossible to hold our mines, our only course was to remove the portable property of the company to Tubac. We were entirely out of money, owing back pay to a considerable force of Mexican workmen, and to two or three Americans, and we needed means for paying for the transportation of the property, and for getting ourselves out of the country.

Our stock of ore was far too small to furnish the amount of silver needed to meet these demands, and our main hope lay in the possibility of collecting debts due to the company. In pursuance of this plan I started alone, but well armed, to visit the Heintzelman mine, one of our principal debtors. The ride of forty miles was made in safety, and in the afternoon I reached the house of the superintendent, Mr. J. Poston. Not being able to obtain money (for no one could afford to part with bullion, even to pay debts) I took payment in ore worth nearly $2,000 per ton, together with a little flour and bolts of cotton cloth. In the course of the afternoon this was despatched in charge of two of the most fearless Mexicans at the mine in Poston's service.

The next morning, April 24, 1861, I started homeward alone, riding a horse I had bought, and driving before me the one that brought me over. I had so much trouble with the loose animal that night found me several miles from our *hacienda.*

Only those who have traveled in a country of hostile Indians know what it can be to journey by night. The uncertain light of the stars, or even of the moon, left open the widest field for the imagination. Fancy gave life to the blackened yucca, and transformed the tall stem of the century plant into the lance of an Apache. The ear of the traveler listened anxiously to the breathing of his horse; his eye ever on the alert, before and behind, watched the motions of the horse's ears, and looked for the lurking place of an Indian.

Still, night was the less dangerous time to travel, for one was not as easily seen at a distance as by day. But after a few night journeys I found the nervous tension so unbearable that I always chose the daytime, preferring to run a far greater risk of death to being made the prey of an overstrained imagination. Then, too, in such a state of society as then existed, the traveler in the dead of night approached a solitary house, perhaps his own, with much anxiety; it was uncertain whether he might not find only dead bodies.

About three miles from the *hacienda,* in the most rocky part of the valley, the horse in front stopped short, and both animals began to snort and show signs of fear. This may have been due to Indians or to a mountain lion. Both horses started off at a runaway speed, leaving all control over either one out of the question. Fortunately, the free horse, followed by my own, first made a long circuit, and then bounded off toward the *hacienda.* After a breakneck course over stony ground, leaping rocks and cacti, down and up steep hills, and tearing through thorny bushes, with clothing torn and legs pierced by the Spanish bayonet, I reached the house.

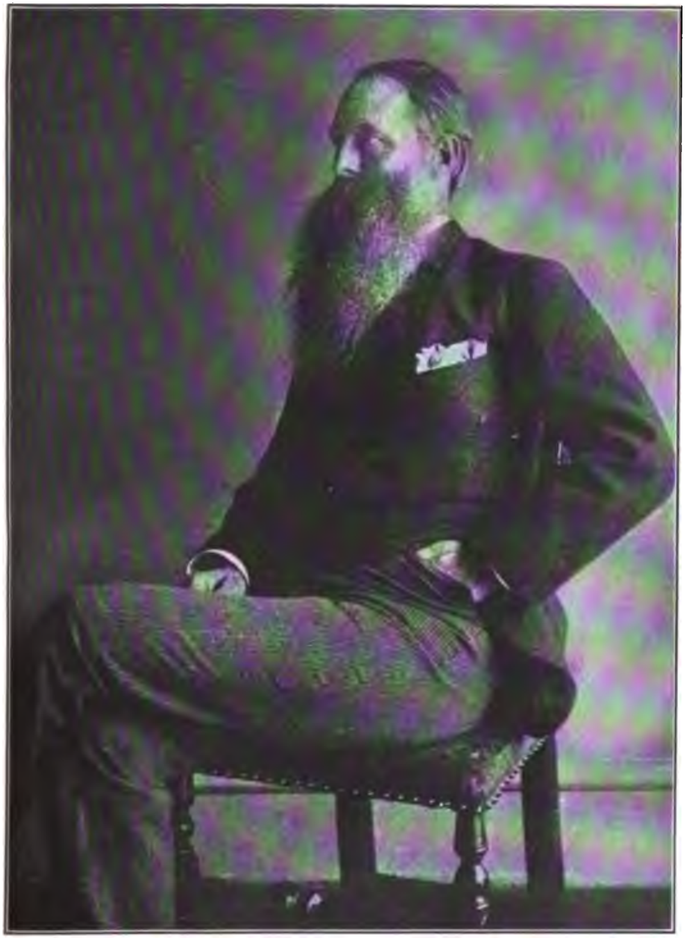
The wagon with the ore, although due that morning, had not arrived, and this was the more remarkable as I had not seen it on the road. When noon came, and the ore still had not arrived, we concluded that the Mexicans, who well knew its value, had stolen it, packed it on the mules, and taken the road to Sonora.

Acting upon this supposition, Grosvenor and I mounted our horses, and, armed and provisioned for a ten days' absence, started in pursuit. Each of us carried a carbine and two revolvers, and a blanket rolled behind the saddle. Our provisions were simple. Each had a bag of *penole*—powdered parched corn mixed with nearly half its weight of Mexican brown sugar; coffee, and a tin cup completed our outfit. We rode two miles to a point where the road turned to the right to set an easy grade over a spur of the *mesa.* To avoid this bend we rode straight ahead on a trail over the spur and descended to cross the narrow valley beyond. The wagon road crossed a few hundred yards further up, and then by an easy ascent joined our trail at the top of the *mesa.*

We were just crossing the bottom of the valley to climb the opposite hill when, looking up, we saw the missing wagon just coming in sight and beginning the opposite descent. One of the Mexicans rode a wheel mule, while the other was walking ahead of the leaders. I noticed that neither of them carried their guns, which were probably left in the wagon. We had evidently judged our men wrongly, and when Grosvenor proposed that we should go on and come back with them I objected, on the ground that the Mexicans, seeing us prepared for a journey, would know at once that we had suspected them. We therefore decided to turn back, but taking another way homeward we quickly lost sight of the wagon. After riding a few hundred yards we dismounted at a spring, rolled a cigarette, and then rode home.

As the afternoon passed away without the arrival of the wagon, we supposed it had broken down, and at twilight Grosvenor proposed that we should walk out and see what had caused the delay. Taking down my hat, I answered: "All right, but to-morrow I've got to begin the smelting, and I want to finish to-night the map and record of the property needed for future use. After all, the Mexicans will send up if they need any help." My friend said: "You're quite right. I'll only go a little way for a walk." It was soon dark, and Robinson and I sat down to tea. By the time we left the table Grosvenor had been out half an hour, and we concluded to go after him.

I will diverge here to tell of a remarkable dream of Grosvenor's which recurred to us after the events which follow this point in my narrative. Grosvenor had told it early in the winter. He had been born in Ohio, and had never seen the sea. When he was a child he dreamed that he stood on the edge of the ocean. He saw a small black line rise on the horizon. He watched it and saw it rise slowly. A small black spot appeared under it. He said the thing then looked like an exclamation point. Then he saw that it was moving up and down. It held him fascinated. Days and weeks seemed



Raphael Pumpelly at Forty-seven Years
From a photograph by Mrs. Henry Adams, 1884

to pass as the thing slowly rose and fell. It rose higher each time than the time before, and grew ever longer and longer till it reached high toward the sky; and this continued till he knew that with the next descent the thing would crush him, but just before it could strike him he awoke.

Grosvenor said that after this the dream came back so often that he grew thin, and his health was affected by it. This lasted for years, the dream coming more rarely till it stopped its torments when he was in his teens.

Grosvenor told this so dramatically that it made a strong impression on us; the "exclamation point" became a household word with us.

About the beginning of April Grosvenor went alone to Tubac for the mail. When he returned he said:

"Pumpelly, I wish you would send some Mexicans to the Point of Rocks to look for tracks. When I got there I heard 'ha! ha! ha!' I couldn't see any one, but there must be Indians near."

The trackers returned without having found fresh tracks.

The next week Grosvenor went again alone for the mail. When he returned he said:

"Pumpelly, I wish you would take the trackers and look yourself. When I came near the Point of Rocks, I heard it again: 'ha! ha! ha!' There must be Indians around there."

So I went with the Mexicans. We found no fresh signs.

The next week Grosvenor went again for the mail. I met him as he returned in the afternoon. He said:

"Pumpelly, I want to take the Mexicans and search the place myself. I heard clearly the same shout: 'ha! ha! ha!' "

When Grosvenor came back before dusk, and I held his horse while he got off, he seemed downcast. As he passed to go into the house he turned to me:

"Pumpelly, *I have* HEARD *the exclamation,*" evidently referring to his dream.

Now I will resume my narrative after the delay of the wagon.

Accompanied by Robinson, and leaving the cook to take care of the house, I walked along the Tubac road. We were both well armed; and the full moon, just rising above the horizon behind us, brilliantly lighted the whole country. We had gone about two miles, and were just beginning to ascend the grade over the spur mentioned above when, hearing the mewing of our house-cat, I stopped, and, as she came running toward us, stooped, and took her in my arms.

As I did so, my attention was attracted by her sniffing the air and fixing her eyes on some object ahead of us. Looking in the direction thus indicated, we could distinguish near the roadside on the top of the hill the crouching figure of a man, his form for a moment just defined against the starlit sky, and then disappearing behind a cactus. I dropped the cat, which bounded on ahead of us, and we cocked our pistols and walked briskly up the hill. But when we reached the cactus the man was gone. Of Grosvenor we as yet saw nothing. Continuing our way at a rapid pace and full of anxiety, we began the long descent toward the *arroyo,* from which we had seen the wagon at noon. Turning a bend about half-way down, we caught sight of the wagon drawn off from the road on the further side of the *arroyo.* The deep silence that always reigns in those mountains was unbroken, and neither mules nor men were visible. Observing something very white near the wagon, we at first took it for the reflected light of a camp-fire, and concluded that the Mexicans were encamped behind some rocks, and that with them we should find our friend. But it was soon evident that what we saw was a heap of flour reflecting the moonlight. Anxiously watching this and the wagon, we came around a slight bend in the road, and had approached within about twenty yards of the wagon when we both started back—we had nearly trodden on a man lying in the road. My first thought was that it was a strange place to sleep in, but he was naked. The first idea had barely time to flash through my mind, when another followed—it was not sleep but death.

As we stooped down and looked closer, the truth we had both instinctively felt was evident—the murdered man was Grosvenor.

For the first time I stood an actor in a scene of death, the victim a dear friend, the murderers and the deed itself buried in mystery.

His head lay in a pool of blood; two lance wounds through the throat had nearly severed the head from the body, which was pierced by a dozen other thrusts. A bullet hole in the left breast had probably caused death before he was mutilated with lances. Evidently he had not moved since he fell by the shot that took his life. He lay face down, and as the feet had been stretched out in stripping the corpse so they remained stretched out when we found him. The body was still warm; indeed, he could not have reached the spot when we left the house.

Grosvenor died at the place where he had heard, or thought he heard, the exclamation that he connected with his dream.

I have seen death since, and repeatedly under circumstances almost equally awful, but never with so intense a shock. For a minute that seemed an age we were so unnerved that I doubt whether we could have resisted an attack, but fortunately our own situation soon brought us to our senses. We were on foot, two miles from the house, and the murderers, whoever they might be, could not be far off, if indeed the spy we had seen had not already started them after us. Looking toward the wagon, I thought I could discover other bodies; but we knew that every instant was of great importance, and, without venturing to examine closer, we started homeward, the cat going ahead of us. There was only one white man at the *hacienda,* and a large number of *peons,* and we did not yet know whether the murderers were Indians, or the two Mexicans, who might be in collusion with our own workmen.

If they were Indians, we might escape by reaching the house before they could overtake us; but if they were our Mexicans, we could hardly avoid the fate the cook at the house must already have met with.

Uncertain whether we were going away from danger or into it, we walked rapidly on constantly on the alert. In this manner we went on till we reached a place where the road lay for some distance through a dense thicket—the very spot for an ambush. We had now to decide whether to take this, the shorter way, or another which, by detaining us a little while longer, would lead us over an open country, where we could in the bright moonlight see every object within a long distance. The idea of being able to defend ourselves tempted us strongly toward the open plain, but the consciousness of the value of every minute made us decide quickly to take the shorter way. Nothing happened until, within a short distance of the *hacienda,* we began to hear Apache signals given and answered, and looking back we saw several Indians coming into view; but we gained the door safely, and found all as we had left it. The American, unaware of danger, was making bread; and the Mexicans were asleep in their quarters. We kept guard all night, but were not attacked.

Before daylight we despatched a Mexican courier across the mountains to the fort, and another to Tubac, and then went after Grosvenor's body. We found it as we had left it, while near the wagon lay the bodies of the two Mexican teamsters. Poston came in the forenoon with fifteen Papago Indians who were able to read the history of the whole of the murderous affair. The wagon must have been attacked within less than five minutes after we had seen it at noon, indeed while we were resting and smoking at the spring not four hundred yards from the spot. A party of Indians, fifteen in number, as we found by the tracks, had sprung upon the unarmed Mexicans; the sand showed the marks of a desperate hand to hand struggle. When they had killed the men, the Apaches cut the animals loose, packed the empty bags and cotton cloth, and went to a spring a mile or two distant, where they feasted on a mule. A party was left behind to waylay such of us as might come out to meet the team. When Grosvenor neared the spot, he was shot by an Indian, who, crouching behind a cactus about ten feet distant, had left the impression of his gunstock in the sand. At the same instant two others lanced him through the throat. Knowing well that their victim would be sought by others, they had left the spy we had seen; and had not the cat directed our attention to him at the moment when he was moving stealthily away, thereby causing us to walk rapidly to the scene of the murder, and faster back, we could hardly have escaped the fate of our friend. We remembered that our dogs had barked all the afternoon with their noses pointed west. Both they and the cat had scented the Indians or the carnage.

During the day, April 26, 1861, Lieutenant Evans arrived with a force of nineteen soldiers, having with difficulty obtained the consent of his commandant, and soon after Colonel Poston reached the mines with a party of Americans. Graves had been dug, and, after reading the burial service and throwing in the earth, we fired a volley and turned away, no one knowing how soon his time might come.

I now foresaw a long and dangerous work before us in extracting the silver from the ore. We could, indeed, have abandoned the mines, and have escaped by accompanying the military, who were to leave in two weeks. But both Mr.

Robinson and myself considered that we were in duty bound to place the movable property of the company in safety at Tubac, and to pay in bullion the money owing to the men. To accomplish this would require six weeks' work at the furnace, crippled as were all operations by the loss of our horses and mules.

It was of the first importance that we should increase our force of Americans, not only for protection against the Apaches, but more especially against the possible treachery of our Mexican workmen, for at almost every mine in the country a part or all of the whites had been murdered by their *peons.* A man named Stickney, one of the party which had come that day from Tubac, was engaged on the spot. Partly in the hope of getting a small force of soldiers who should remain till the abandonment began, and partly to persuade two Americans who lived on the road to the fort to join us, I resolved to accompany Lieutenant Evans, who was obliged to return the next day.

Taking with me a young Apache who had been captured while a child, and had no sympathy with his tribe, I rode away with Lieutenant Evans, intending to return the next day. The wagon road lay for ten miles along a tributary of the Sonoita valley, then ascended the Sonoita for twelve miles to the fort, where a bridle-path across the hills shortened the distance some two or three miles, by leaving the road before the junction of the two valleys. To reach the house of the Titus brothers, whom I wished to see, we should have to follow the wagon road all the way; and as more than a mile of it before the junction of the valleys lay through a narrow and dangerous defile, on an Apache war trail that was constantly frequented by the Indians, Lieutenant Evans would not assume the responsibility of risking the lives of his men in a place where they would be at such disadvantage. While I felt obliged to acknowledge that it would be imprudent to take infantry mounted on mules through the defile, it was of the first necessity that I should see the Americans living near the junction of the valleys. At the point where the hill trail left the road, bidding good-by to Lieutenant Evans, who, could he have left his men, would have accompanied me himself, I was soon alone with Juan, my Apache boy. As we neared the gorge I observed that Juan, who was galloping ahead, suddenly stopped and hesitated. As I came up he pointed to the sand, which was covered with fresh foot-tracks.

It was evident that a considerable party of Indians had been here within half an hour, and had suddenly dispersed in different directions in the hills. Our safest course seemed to be to press forward and reach Titus's house, now about two miles off. We were on good horses, and these animals, not less alarmed than ourselves, soon brought us through the defile to the Sonoita creek. We slipped our horses' bridles without dismounting, and refreshed them with one long swallow. We had barely left the creek when we passed the full-length impression of a man's form in the sand, with a pool of blood, and at the same instant an unearthly yell from the hills behind us showed that the Apaches, although not visible, were after us, and felt sure of bringing us down. Our horses, however, fearing nothing so much as an Indian, almost flew over the ground and quickly brought us in sight of Titus's *hacienda*. This lay about two hundred yards off from the road in a broad valley shaded by magnificent live-oaks.

As we rode rapidly toward the houses I was struck with the quietness of a place generally full of life, and said so to Juan.

"It's all right," he replied. "I saw three men just now near the house."

But as we passed the first building, a smith's shop, both horses shied, and as we came to the principal house a scene of destruction met our eyes. The doors had been forced in, and the whole contents of the house lay on the ground outside, in heaps of broken rubbish. As I started to dismount, to look for the bodies of the Americans, Juan begged of me not to stop.

"They are all killed," he said, "and we shall have hardly time to reach the road before the Indians come up. Promise me," he continued, "that you will fight when the devils close with us; if not I will save myself now."

Assuring the boy, whom I knew to be brave, that I had no idea of being scalped and burned without a struggle, I put spurs to my horse, and we were soon on the main road, but not a moment too soon, for a large party of Apaches, fortunately for us on foot, were just coming down the hill, and entered the trail close behind us. A volley of arrows flew by our heads, but in a few seconds our horses carried us out of reach, and the enemy turned back. Slackening our speed, we were nearing a point where the road crossed a low spur of the valley terrace when suddenly several heads were visible for an instant over the brow of the hill, and as quickly disappeared. Instantly guessing that we were cut off by another band of Indians, and knowing that our only course was to run the gantlet, we rode slowly to near the top of the hill to rest our animals, and then spurred the horses onward, determined if possible to break the ambush. We were on the point of firing into a party of men who came in full view as we galloped over the brow of the hill, but instead of Apaches they were soldiers and Mexicans. They had been burying an American who had been killed that morning. It was the impression of this man's body which we had seen near the creek. He had been to the fort to give notice of the massacre of a family living further down the river, and on his return had met the same fate, about an hour before we passed the spot. An arrow, shot from above, had entered his left shoulder and penetrated to the ribs of the other side, and in pulling this shaft out a terrible feature of these weapons was illustrated. The flint-head, fastened to the shaft with a thong of deer-sinew, remained firmly attached while this binding was dry; but as soon as it was moistened by the blood, the head became loose, and remained in the body after the arrow was withdrawn. The Apaches had several ways of producing terrible wounds; among others by firing bullets chipped from the half-oxidized mats of old furnace heaps, containing copper and lead combined with sulphur and arsenic. But perhaps the worst, at short range, were produced by bullets made from the fiber of the aloe root, which were almost always fatal, since it was impossible to clear the wound.

On reaching the fort and seeing the commandant, I was told that he could not take the responsibility of weakening his force. As the troops from Fort Breckenridge were expected in a few days, I was led to believe that after their arrival I might obtain a small number of soldiers. But when, after several days had passed without bringing these troops, the commandant told me that not only would it be impossible to give us any protection at the Santa Rita, but that he could not even give me an escort thither, I resolved to return immediately with only the boy Juan. In the meantime a rumor reached the fort that a large body of Apaches had passed through the Santa Rita valley, had probably massacred our people, and were menacing Tubac. I was certainly never under a stronger temptation than I felt then to accept the warmly-pressed invitation of the officers to leave the country with the military, and give up all idea of returning to what they represented as certain death. But I felt forced to go back, and Juan and I mounted our horses. I had hardly bid the officers good-by when Robert Ward, an old frontiersman, joined us, and declared his intention of trying to reach his wife, who was in Tubac. As we left the fort a fine pointer belonging to the commandant followed us, and, as he had become attached to me, we had no difficulty and few scruples in enticing him away to swell our party. We took the hill trail, it being both shorter and safer, and had reached a point within three miles of the Santa Rita without meeting any fresh signs of Indians when the dog, which kept always on the trail ahead of us, after disappearing in the brush by an *arroyo,* came back growling, and with his tail between his legs. We were then two or three hundred yards from the thicket, and quickening our horses we left the trail and crossed the *arroyo* a hundred yards or more above the ambush: for such the dry tracks in the sand, where we did cross, showed it probably to be.

We reached our mines safely, and found that, although they had been almost constantly surrounded by Apaches, who had cut off all communication with Tubac, there had been no direct attack. Our entire Mexican force was well armed, a fact which, while it kept off the Indians, rendered it necessary that our guard over the *peons* should never cease. Nor did we once, during the long weeks that followed, place ourselves in a position to be caught at a disadvantage. Under penalty of death no Mexican was allowed to pass certain limits, and in turn our party of four kept an unceasing guard, while our revolvers, day and night, were rarely off our person.

We had now to cut wood for charcoal, and to haul it in, stick by stick, not having enough animals to draw the six-horse wagons. This and burning the charcoal kept us nearly three weeks before we could begin to smelt. Our furnaces stood in the open air about one hundred yards from the main house, and on a tongue of land at the junction of two ravines. The brilliant light illuminating every object near the furnace exposed the workmen every night, and all night, to the aim of the Apaches. In order to obtain timely notice of the approach of the Indians, we picketed our watch-dogs at points within a hundred yards of the works; and these faithful guards, which the enemy never succeeded in killing, probably more than once saved us from a general massacre. The whole Mexican force slept on their arms around the furnace, taking turns at working, sleeping, and patrolling, receiving rations of whiskey, sufficient to increase their courage without making them drunk. This drink I made of equal quantities of alcohol and water flavored with dried peaches.

During the long weeks we were isolated only rare word came from Tubac, and none from the East. One day there came a letter from Fort Buchanan which showed how absolutely we were shut off from the world.

CHAPTER XVIII

AFTER SMELTING THE ORE WE ABANDON MINES AND SEEK REST ON THE DESERT

After repeated destruction of stations along the long route through Texas and Arizona, the Indians had caused the abandonment of the Overland Mail, by destroying the stations and the superintendent. The end was tragic. The superintendent was making the last trip to close up the route. He had with him a guard of fifteen mounted Texas rangers. The coach carried, I think, $20,000 in gold, and was filled with passengers. At Steen's Pass they were attacked by a large band of Apaches. Not a soul escaped. When the spot was visited later, by a military party, it was seen that the whites must have held out long; lying flat behind stones and firing at the Indians, who used the same tactics, as was shown by the lead-battered stones.

The inclosed letter gave the first news of the affair:

Fort Buchanan, May 21, '61.

Dear Sir:

Your note of the 17th inst. is at hand, and in reply regret to say that we have received no mail or no news from the East—the Military Express that left here on the 6th returned yesterday from Fort McLain without mail—or any late advices.

The mail taken by the Indians at "Steen's Peak" doubtless had many letters for all of us. Envelopes addressed to Lt. Evans were found near the point where the coach was taken (and every person with the coach was doubtless murdered).

Yours truly,
T. F. White.

R. Pumpelly, Esq.,
Santa Rita.

More than one attempt was made by the Apaches to attack us, but being always discovered in time, and failing to surprise us, they contented themselves with firing into the force at the furnace from a distance. In the condition to which we all, and especially I, had been brought by weeks of sleepless anxiety, nothing could sound more awful than the sudden discharge of a volley of rifles, accompanied by unearthly yells, that at times broke in upon the silence of the night.

The above letter shows that the troops were still at the fort twenty miles away. The commandant made no move to protect the few Americans who were all within twenty or thirty miles of his post.

As already intimated, we were now four, Robinson, Stickney, the German cook, and I. While one stood guard at night, the others slept in their clothes. The first of those nights was one of those critical moments when, in darkness and danger, one is face to face with one's inmost soul. I was sleeping, dressed excepting shoes. A quick succession of shots and yells brought me to my feet and standing on the cold earthen floor. My knees were knocking together. Afraid to show myself in such a condition before my men, I sat down on my cot to recover a balance, and rolled a cigarette and smoked a whiff or two. The mental struggle was over; it had lasted hardly a minute, and I went out to the others, who never knew.

A young Mexican woman had told one of us that the *peons* had planned to kill us as soon as the silver should be refined. So I arranged to concentrate this work into the last two or three days, and to leave the mine as soon as the refining was finished, though it would probably mean a considerable loss of silver.

Despatching a messenger, who succeeded in reaching Tubac, I engaged a number of wagons and men, and on their arrival everything that could be spared was loaded and sent off. The train was attacked and the mules stolen, but the owner and men escaped, and bringing fresh animals, succeeded in carrying the property into Tubac.

At last the result of six weeks' smelting lay before us in a pile of lead *planchas* containing the silver, and there only remained the separating of these metals to be gone through with. During this process, which I was obliged to conduct myself, and which lasted some fifty or sixty hours, I scarcely closed my eyes; and the three other Americans, revolver or shotgun in hand, kept an unceasing guard over the Mexicans, whose manner plainly showed their thoughts. Before the silver was cool, we loaded it. We had the remaining property of the company, even to the wooden machine for working the blast, in the returned wagons, and were on the way to Tubac, which we reached the same day, the 15th of June. Here, while the last wagon was being unloaded, a rifle was accidentally discharged and, the ball passing through my hair above the ear, deafened me for the whole afternoon.

Thus ended my experience of eight months of mining operations in an Apache stronghold.

THE FRONTIER AND THE DESERT

The social condition of Arizona from 1857 till 1862, and later, was one which could not fail to furnish much food for thought to even a superficial observer. When the country came into the possession of the United States it was almost entirely depopulated, excepting the Indian tribes. After the conclusion of the Gadsden treaty Arizona was entered by Colonel C. D. Poston with a party of explorers, and, from the high assays of ores discovered by them, soon gained a reputation as a silver district. A considerable number of companies were soon formed to work mines in various parts of the country. In addition to the people sent out to work in different capacities at the mines, a small American population, both floating and settled, was soon formed, mostly from the Southern states, and of men unaccompanied by families. Some of these were old frontiersmen, many more were refugees from the slackly administered justice of Texas, New Mexico, and California; and when the Vigilance Committee cleared San Francisco of its worst elements a large number of the ruffians and gamblers made their homes in Arizona. In addition to this there flowed into the country many thousands of Mexicans, who had formed the most degraded class in a land where social morality was at its lowest ebb. At this period the total white and *peon* population amounted to a few thousand.

There was hardly a pretense at a civil organization; law was unknown, and the nearest court was several hundred miles distant in New Mexico. Indeed, every man took the law into his own hands, and a man's life depended on his own armed vigilance and prudence, and mainly on the fact that public opinion was the only code of laws, and a citizen's popularity the measure of his safety. And in a society composed to a great extent of men guilty of murder and every other crime, popularity was not likely to attach to the better class of citizens. The immediate result of the condition of public opinion was to blunt ideas of right and wrong in the minds of newcomers who, suddenly freed from the restraints of the East, soon learned to justify the taking of life on trifling pretexts, or even to destroy it for the sake of bravado. Murder was the order of the day; it was committed by Americans upon Americans, Mexicans, and Indians; by Mexicans upon Americans; and the hand of the Apache was, not without much reason, against both of the intruding races.

The treachery of Mexican workmen went to such an extent that I believe there was hardly a mine in the country at which the manager, or, in some instances, all the white employees, had not been at sometime assassinated by their *peons* for the sake of plunder.

Indeed I am the only one of at least five successive managers of the Santa Rita who was not killed by Mexicans or Indians.

Two races of Indians inhabited Arizona, south of the Gila River. In the western part were the Papagoes, a quiet, friendly, agricultural people, living in their peculiar villages. The rest of the country was overrun by the savage, hunting tribes of Apaches. It was the Apache that caused most of our troubles at the Santa Rita.

Until the treachery of our troops at Apache Pass, these Indians had almost wholly limited their activities against the other races, to killing Mexican herdsmen, and stealing horses. Against Mexicans they had a long-standing deadly feud. In their raids into Mexico they sought, not so much horses, as to kill off a people who had always been bitter enemies.

The Apaches had had no reason to be friendly to the Americans, for they had been treated by the whites with as much cruelty as could be charged against themselves. It is to their credit that they showed so much self-restraint. When they were betrayed, under a white flag, by an officer who represented the Government, they could not in justice be blamed for deciding on war to the end.

I shall tell of a talk I had about fifty years later with Geronimo, who was active in the raids in my time.

The history of our Indian troubles through more than a century is the history of a people in the childhood stage of civilization, trying to maintain rights granted to them as wards by solemn government treaties—treaties that under collusion with a corrupt Department of the Interior have been continually violated by the "Indian Ring" and greedy hordes of land grabbers and swindling lawyers.

Two instances illustrate the thorough organization of this "Ring."

Before the finishing of the Northern Pacific Railroad the

Indian agencies along the Missouri River received by steamboat the supplies guaranteed to the Indians. Mr. Seth Bullock, an early citizen of Helena, an incorruptible sheriff and later one of Roosevelt's Rough Riders, told me of the following characteristic methods of the "Ring," from his own knowledge.

The Government boat would deposit the supplies for the Indians on an agency dock, and take the pliable agent's receipt. Directly after this, from agency to agency, would come the boat of the "Ring" to gather up the supplies.

Another instance was told me by a gentleman in my official car when I was directing the Northern Transcontinental Survey. This man had been connected with investigations of the "Ring's" methods.

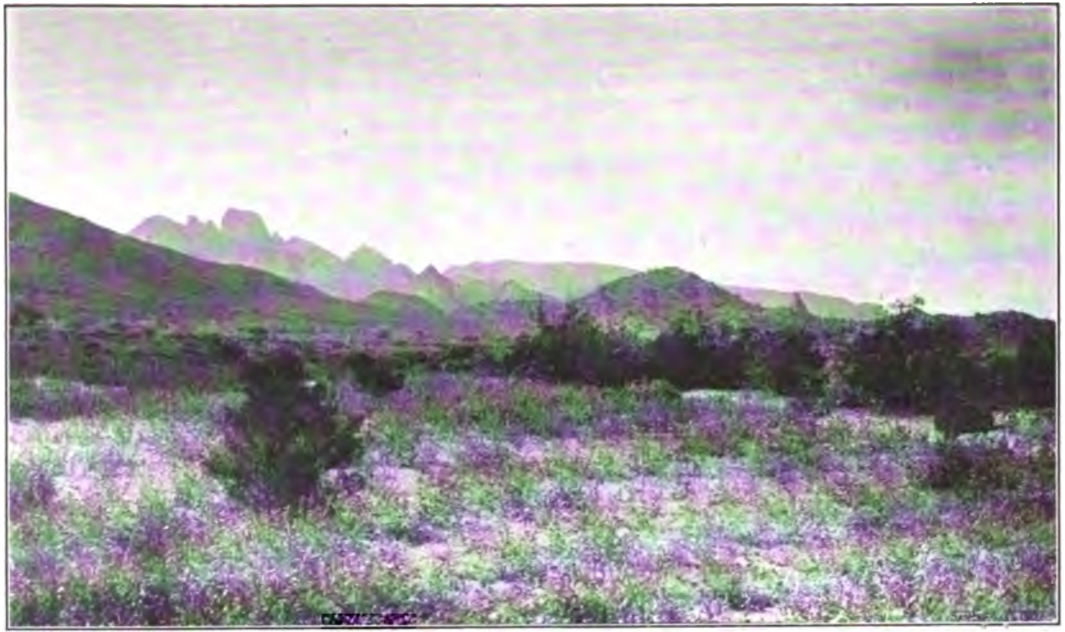
He said that, when Professor Marsh was bravely trying to expose the infamies of the "Indian Ring," he (my narrator) was shown a bunch of affidavits which had been prepared for use against Professor Marsh if the prosecution should reach a certain point. These affidavits attacked Marsh's moral character, charging him with a long series of infamous crimes.

When we deposited the movable property of our company at Tubac, we did so under the supposition that that village would be a point where, until the fresh troops whose coming was rumored should arrive, a large part of the white and Mexican population would concentrate for mutual defense. As soon as the contents of the wagons were stored away, the silver assayed, and our debts paid, I determined to make a journey for recreation into the Papagoria—the land of the friendly Papago tribe. In company with Colonel C. D. Poston and Mr. J. Washburn, I reached the Cerro Colorado or Heintzelman mine, then being worked by the first-named gentleman. Here we took a Mexican guide, and laid in our provisions, consisting of *pinole*—powdered parched corn, sugar, and coffee.

Early the next morning we left the mine, and, following the Indian trail westward for several miles, came onto the great Baboquiveri plain. This broad stretch of wild grassland being one of the main thoroughfares of the Apaches, we were obliged to keep a good lookout all day. But notwithstanding the great heat, and the danger from Indians, the combined effect of the grand scenery and the prospect of reaching a country where comparative safety would allow a few nights of unguarded sleep filled me with new life, and I gave myself up again to the fascinating influence of Nature in the Rocky Mountains. Twenty miles or more to the west of us rose the sharp and lofty peak of the Baboquiveri, its eagle-head outline and every feature sharply defined, while the range out of which it towers stretched away in long wings of barren rocks, till lost in the northern and southern horizons.

As we entered the valley from its eastern border, the broad plain lay before us. Descending in a gentle slope to the center, and thence rising gradually to the same height along the base of the opposite mountain range, it was a wide expanse of grassy steppe, and forests of *mesquite* and cacti. Detecting us from afar, a drove of wild horses trotted off over the grassy surface, and we watched their graceful course as, with streaming tails and flowing manes, they disappeared in the distance. They were supposed to be descended through many generations from strayed horses of the early Spaniards. The Indians caught them sometimes by grazing the top of the neck with a well-aimed ball that stunned without killing.

The only other signs of life that break the monotony of these journeys are given by the herds of bounding antelopes, or by the red or gray wolf as he trots slowly away from the traveler, stopping doglike ever and anon to turn and watch the intruder. The tracks of the great grizzly bear, the marks of the huge paw of the no less ferocious panther, and the



Baboquivari Peak from the Northwest

sudden and frequent sound of the rattlesnake warn the traveler of other dangers than the Apache.

Taking a diagonal course over the plain, we reached the foothills of the Baboquiveri range at the approach to Aliza pass. It was late at night before we had wound through the rocky defile, and by the light of the full moon ascended to the spring near the top. After watering the horses from our hats, and drinking a supper of *pinole* in water ourselves, we took turns at watching and sleeping.

Early the next morning we reached the summit of the pass. The Baboquiveri range formed the boundary between the Papagoes and Apaches, two tribes differing widely in appearance, character, and habits, and between whom there has ever been enmity.

The Papagoes carefully guarded the approaches to their country, and these passes have been the scenes of many desperate battles. But the desert character of the Papagoria is its best defense, since, in view of the great scarcity of water over an immense area, it would be almost certain death to a party of Apaches to penetrate far into it. At the summit of the pass stands a large pile of stones, literally bristling with arrows, both old and new. Whether this was a landmark or battle monument I did not learn.

A ride of twenty miles over a gravelly plain, which reflected the intense heat of the sun, brought us to Cahuabi, a Papago village on the skirt of the desert.

Most of the Papago villages on the desert were several miles from any water, and one of the chief occupations of the women was the obtaining of it, and bringing it home. I say obtaining: for getting water there was often a labor of patience, skill, and danger. In many places it was to be had only by digging. A spot was chosen where the rock dips under a deposit of sand, and an opening like a quarry was sunk in the latter, exposing the rocky surface. The little water that trickles slowly, drop by drop, along the plane of contact between sand and stone, was collected with the greatest care till the labor was rewarded by a few quarts in the earthen vessel which the woman then bore off on her head, perhaps six or nine miles. In very dry seasons water could be had only by extensive digging of this kind. A friend once reached one of these wells at a time when, after a succession of dry seasons, the Indians were dying from thirst. He found a large number of natives digging recklessly far below the surface, and following down the line of contact between sand and rock, in the vain hope of finding a few drops of water. In their despair they undermined the high face of the sand and it fell, burying forever a number of the unfortunate women.

From Cahuabi we made an excursion into the desert, to visit a mine being opened by some Mexicans. At the outset our way lay over a gravelly plain covered with small scrubby acacias, and the green leafless *palo-verde,* over which towered countless columns of the *saguara.* This giant cactus, one of the wonders of the vegetable world, impresses a peculiar character on the scenery in which it occurs. Often a simple shaft, as large at the top as at the base, it rises thirty and even fifty feet above the ground. Its green surface is fluted like a Grecian column, and armed from base to summit with small clusters of long thorns, while a coronet of beautiful highly-colored flowers encircles the base of the hemispherical top. In the season these flowers are replaced by a sweetish fruit, as large as a hen's egg, which forms an important source of food among the Papagoes. This fruit was made into an agreeable sirup, which seemed to be as much prized among these Indians as the sugar and sirup of the maple were among the northeastern tribes. Beneath the soft green exterior the body of the shaft is a skeleton of poles, finger-thick, as long as the plant, and irregularly connected together into the form of fasces. These poles taken from dead trunks furnish, with the exception of the bow and arrow, the only means of reaching the fruit.

Returning to Cahuabi, we began our homeward journey, intending to reach Arivacca by a trail crossing the mountains south of the Baboquiveri peak. We encamped for the night near the western foothills of the range, and from our elevated position the vast plains, stretching away toward the Pacific, were spread out before us. To this grand landscape the brilliant light of the full moon lent enchantment, rendering more weird the unfamiliar plant forms, silvering the distant ridges of barren granite and the surface of the boundless desert. Not a sound, not even a breath of air, broke the silence of the night.

Soon there came the doleful bark of the red wolf, growing louder and nearer as the animals approached and hovered about the camp.

In the morning I found that the rawhide thongs had been gnawed off my saddle, although it had served me for a pillow all night.

Before noon we reached Fresnal, a Papago village. Near this we encamped by a spring of good water, surrounded by fine ash and *mesquit* trees, and lying in a ravine descending from the Baboquiveri peak. Our intention was to leave Fresnal the next morning, but an accident occurred by which all our plans were changed. While we were eating our *pinole,* a sandstorm was seen whirling rapidly toward us from the desert, and we all hastened to wrap our firearms in the blankets, to protect them from the penetrating dust. In doing this Washburn let his revolver fall. It went off and drove a ball into the inner side of his right thigh. An examination showed that the ball had not come out, and it seemed almost certain that it had entered the abdomen, and that death must soon follow. A hasty consultation resulted in sending a

Papago on Washburn's horse to Tucson, about sixty miles distant, for a doctor, while Colonel Poston, with the guide, started by the trail over the mountain to bring an ambulance from Arivacca, about forty miles off, and I remained to nurse our wounded companion. Washburn complained of pain in his back between the shoulders and along the spine. An examination showed something hard, below the neck, which might be the ball. Being entirely ignorant of everything relating to surgery, I did not venture to cut it out, but decided to wait for the doctor, in the meantime keeping the wound constantly washed. After an absence of less than two days and a half, the Papago returned, having nearly killed the fine horse he rode, and bringing a letter, in which the doctor regretted the impossibility of undertaking a journey in the existing condition of the country. He sent some medicines but forgot to give directions. Among the things was some gum camphor. This I rubbed up in water and with it washed his wound.

The days passed without bringing any news from Colonel Poston, and, concluding that another friend had swelled the long list of victims to the Apaches, I awaited the time when I should either help my companion into his saddle or dig his grave. Recovery seemed almost impossible, with the thermometer ranging from 116° to 126° F. in the shade, and when night brought only a parching desert wind.

Day after day passed without bringing any change in our prospects, or in the condition of the wounded man. The Papagos of the neighboring village, from whom I bought milk and boiled wheat, were at first friendly. Their frequent visits to our camp relieved the tedious monotony of the long days, and I occupied my time in learning their language. But gradually these visits to our camp became rarer, and finally ceased altogether. The old chief raised the price of milk from one string of beads per quart to two strings, and the smallness of my supply of this currency rendering it necessary to raise their value in the same proportion, our relations became daily less and less friendly. Our isolated position thus grew every day more unpleasant, surrounded as we were by Indians who were nominally friendly, but who had murdered more than one helpless traveler.

Many days had passed since the accident when a Mexican arrived from Colonel Poston bringing provisions, and the following letter:

Arivacca, Sunday Morning, 24 June.

My dear Sir:

On this side of the Baboquiveri plain my guide lost the trail and in the night was not able to find the *puerta* or entrance to this valley.

He endeavored to find the way over the mountains but soon became bewildered, and Saturday morning about 10 o'clock strayed off from me in the direction of Sonora, and I am afraid will perish or be killed.

I was entirely lost by trusting the guide, and with the utmost difficulty succeeded in getting out of the mountains into the Baboquiveri plain again Saturday evening, and, finding the road, arrived here this Sunday morning about day, having traveled about 150 miles in 37 hours.

The Apaches made a descent on this place Thursday morning before day, and cleared our corral.

Hot pursuit was made, but by ambush one of our men (Ridenow) was killed and three Mexicans wounded.

Our party, having dismounted, lost also the horses engaged in pursuit and retired.

Under present circumstances I cannot send an ambulance for Mr. Washburn, and besides I am informed that an ambulance cannot be got there.

I send a reliable boy out to you with such provisions as I have.

You can make a hand litter out of Mr. Washburn's ticking and the materials I send, and have him brought in by Papagoes or mules.

I would not apprehend any danger by either pass, and think you can come in safety.

You can rely upon the boy Oriole as a guide, and use him in any manner you think proper.

If Dr. Hughes is there he will come in with you.

No mail yet—I send to Tucson to-morrow and hope for one by the time you return.

Hoping you will all get in safely and well I beg you will excuse my inability to do anything more.

Yours very truly,
Charles D. Poston.

I immediately made the proposition to the chief, beginning by offering a horse, and ending with the offer of horses and arms. It was useless. The old man was tempted; but most of the warriors being away for the summer, he would not venture to expose the village to a raid from the Apaches by sending the young men with us.

The Mexican left the welcome provisions and returned to Arivacca, with a note saying that I might try to get to Saric when Washburn should be able to travel or should have died. Again the same tedious routine of watching and waiting was resumed. Nearly all my time during the day, and much of the night, was occupied in keeping camphorated water on Washburn's wound. By this means, together with the dryness of the climate, it was kept free from gangrene, and the condition of my patient was apparently improving.

One day the unexpected but welcome sound of a creaking wheel was followed by the appearance of a wagon drawn by mules, and escorted by eleven Mexicans. It was a party that had gone from Sonora, over the desert, to open a mine, and was now returning with a load of ore. The scarcity of water on the desert had caused them to take the route along the foot of the mountains, and, fortunately for us, the first wagon that had ever passed this way came in time to give us relief. A bargain was immediately made—the Mexicans, who were on foot, agreeing to take Washburn to Saric, in Sonora, for five dollars. Making as comfortable a bed for the wounded man as was possible, over the rough load of ore, we began this new stage of our journey.

The mules made slow progress, rarely over ten or twelve miles a day, and now and then losing a day altogether; still it was a great relief to be again on horseback. At Poso-Verde we reached the border of the Papagoria. Here the Indians had taken advantage of the existence of a spring and abundant grass. The spring was a small pool, in which stood, during the heat of the day, all the cattle that could find room, and in it the Indians bathed every morning. Already from a distance we smelt the water, and when we reached it, it seemed more like a barnyard pool than a reservoir of drinkable water. Still we were forced to use it there, and to lay in a supply.

Leaving Poso-Verde we turned from the mountains onto a broad plain, bearing scarcely any other vegetation than scattered tufts of grass. As we were now exposed to the Apaches, we were obliged to keep a constant lookout. The Mexicans had no ammunition, and ours was useless to them. In two or three days it was suddenly discovered that we were out of provisions and tobacco. A Mexican was sent ahead on our extra horse to get supplies at the nearest village in Sonora, and it was hoped he might meet us on the second or third day, at least in time to prevent any deaths from starvation.

But when the third day passed without his return, it was evident that hunger was telling fearfully on us. The Mexicans became, all of them, more or less deranged, as much from want of tobacco as from hunger. Fortunately there was a kind of cactus from which we could get a thirst-satisfying liquid and this removed the worst of dangers. We could make but little progress, as our companions wandered away from our course, and my time was divided between guiding the mules and keeping the men near the wagon. I was entirely ignorant of the route, and, not being able to rely on the random talk of the crazy guides, could only keep a southerly course, and trust to accident for finding water.

The Mexicans tore open my saddle-bags in search of tobacco, an action I had neither the strength nor the heart to resist. I began to feel that my own reason was leaving me.

Fortunately, before night overtook us, we reached a low range of hills, and my heart beat fast as I saw a number of *petaihya* cacti growing from the rocks. It was the season for their fruit, and enough of it was found to supply a scanty meal all around.

The next day, fearing to go on, we remained quiet, and I stood guard till the following morning, to prevent the starving men from killing one of the mules, knowing well that it must inevitably cause the death of Washburn. Toward noon of the fifth day a horseman was seen coming from the north, who proved to be our Mexican bringing provisions. He had passed us in the night, and had gone a long day's journey beyond us, before cutting our trail. Our deliverer was torn from his horse by the men, in their impatience to get at the supplies, but, before taking a mouthful of food, we all quickly rolled cigarettes, and each inhaled one long draught, and then fell to eating. Fortunately, the man had been wise enough to hide most of his load, to prevent the effects of overeating in our condition. By the next morning we were nearly recovered from the effects of starvation, as was shown by the returned sanity and straightened forms of all.

Two or three days more brought us to Saric, where the sympathies of the entire female population were immediately enlisted in behalf of Washburn, and we were soon furnished with as comfortable quarters as the poor frontier village could supply. This was not much, however, consisting of a room, in which we spread our blankets on some fresh cornstalks.

Here I found awaiting me the following letter from Poston:

Arivacca, 27 June, 1861.

My dear Sir:

I avail myself of a passenger to send you some late newspapers. The Civil War in the States seems to have begun in earnest and

Charles D. Poston, 1867

we may hear of an important battle at Harpers Ferry or Washington by the next mail.

I have advices from Col. Colt that an agent will be here to relieve me in all the present month and I now look for him daily.

The Apaches have made two attacks at Fort Buchanan, each time carrying off the stock and killing two soldiers.

Bill Ake shot a neighbor on the Sonoita named Davis the other day and some thirty regulators are after him sworn to take him dead or alive.

No other news of consequence.

The messenger waits.

Come up soon.

Yours truly,
Charles D. Poston.

The Apaches had made a raid on the place that day, and the village was in a state of excitement. An old Spaniard was found whom we both knew, and who, having some knowledge of surgery, proceeded to cut out the ball.

This was done successfully, the lead coming out in two pieces. The pure air of the desert, and careful treatment and constant nursing on the part of the kind-hearted Mexican women, finished the cure, and Washburn in less than two weeks was on the road to certain recovery, and I prepared to leave him, to return to Arizona. When on the point of starting I was seized with chills and fever, and for a week was the patient, in turn, of every woman, young and old, in the village. But kind nursing, aided by emetics and warm water by the pailful, and a very bitter bark—probably calisaya—restored me, and, leaving a country where the men were mostly cut-throats and the women angels, I rode toward Arizona.

CHAPTER XIX

CLOSING SCENES AND ESCAPE

At Arivacca I found Colonel Poston impatiently awaiting the arrival of the agent of Colonel Colt, to whom he had transferred the lease of the Heintzelman mine. Being both of us anxious to leave the country, we determined on a journey together through the principal mining districts, to the City of Mexico, and thence to Acapulco or Vera Cruz. Before beginning this we visited Tubac, where we found the population considerably increased by Americans who had been driven in by the Apaches from the ranches of the Santa Cruz valley.

In three days we were ready to return to the Heintzelman mine, and the morning of the fourth day was fixed for our final departure from Tubac. But something occurred in the evening which interfered with our plans. Just before dark a Mexican herdsman galloped into the *plaza,* and soon threw the whole community into a state of intense excitement. He had gone that morning with William Rhodes, an American ranchero, to Rhodes's farm, to bring in some horses which had been left on the abandoned place. The farm lay about eighteen miles from Tubac, on the road to Tucson, and to reach it they passed first through the Reventon, a fortified ranch ten miles distant, and then through the *Canoa,* an abandoned stockade station of the Overland Mail, fourteen miles from Tubac. At this place they found two Americans cooking dinner; and telling them they would return in an hour to dine, they rode on. Having found the horses, they returned, and, before riding up to the house, secured the loose animals in the *corral,* and then turned toward the stockade. Their attention was at once drawn to a garment drenched in blood hanging on the gate, and as they approached this a scene of destruction confronted them. The Apaches had evidently been at work during the short hour that had passed. Just as the white men were on the point of dismounting, they discovered a large party of Indians lying low on their animals among the bushes a few hundred yards off the road. Instantly Rhodes and the Mexican put spurs to their horses, to escape toward the Reventon, the Apaches broke cover, and reached the road about one hundred yards behind the fugitives.

There were not less than a hundred mounted warriors, and a large number on foot. About a mile from the stockade Rhodes's horse seemed to be giving out, and he struck off from the road toward the mountains, followed by all the mounted Indians. The Mexican had escaped to the Reventon, and thence to Tubac, but he said that Rhodes must have been killed soon after they parted company.

It being too late to do anything by going out that night, we determined to look up the bodies and bury them the following day. Early the next morning I rode out with Colonel Poston and three others to visit the *Canoa.*

When we came to the Reventon a Mexican was opening the gate. As I rode in for information a door opened, and Rhodes, smoking a long cigar, sauntered leisurely towards me, with his left arm in a sling.

"Hello, Rhodes," I said, "we've come to bury you."

"Well, you've come too soon," he answered, laughing.

He corroborated the story of the Mexican, and told how he managed this his remarkable escape. Finding his horse failing, and having an arrow through his left arm, he left the road, hoping to reach a thicket he remembered having seen. He had about two hundred yards' advantage over the nearest

Indians, and as he passed the thicket he threw himself from the horse, which ran on while he entered the bush. The thicket was dense, with a very narrow entrance leading to a small *charco* or dry mudhole in the center. Lying down in this he spread his revolver, cartridges, and caps before him, broke off and drew out the arrow, and feeling the loss of blood, buried his wounded elbow in the earth. All this was the work of a minute, and before he had finished it the Indians had formed a cordon around his hiding place, and found the entrance. The steady aim of the old frontiersman brought down the first Apache who rushed into the narrow opening. Each succeeding brave as he tried the entrance met the same fate, till six shots had been fired from Rhodes's revolver, and then the Indians, believing the weapon empty, charged bodily with a loud yell. But the cool ranger had loaded after each shot, and a seventh ball brought down the foremost of the attacking party. Rhodes dropped thirteen Indians. During all this time the enemy fired volley after volley of balls and arrows into the thicket. Then the Indians, who knew Rhodes well by name, and from many former fights, called out in Spanish: "*Don Guiglelmo! Don Guiglelmo!* Come out and join us. You're a brave man, and we'll make you a chief." "Oh, you—, you! I know what you'll do with me if you get me," he answered. After this Rhodes heard a loud shout: "Sopori! Sopori!"—the name of the ranch of a neighboring mine—and the whole attacking party galloped away.

Leaving the Reventon, we rode toward the *Canoa*. As we neared it the tracks of a large drove of horses and cattle, and of many Indians, crossed the road. Soon we came in sight of the station, and two dogs came running toward us. With low, incessant whining they repeatedly came up to us, and then turned toward the entrance, as if beseeching our attention to something there. When we entered the gate a scene of destruction indeed met us. The sides of the house were broken in, and the court was filled with broken tables and doors, while fragments of crockery and ironware lay mixed in heaps with grain and the contents of mattresses. Through the open door of a small house, on one side of the court, we saw a naked body, which proved to be the remains of young Tarbox, who had come from Maine a short time before. As in the case of many of the settlers, the first Apaches he had seen were his murderers. Under a tree, beyond a fence that divided the court, we found the bodies of the other American and a Papago Indian, who, probably driven in by the Apaches, had joined in the desperate struggle that had evidently taken place. These bodies were pierced by hundreds of lance wounds.

Our small party of five took turns in keeping watch and digging the graves. Burying in one grave the two who had fought together, we wrote on a board: "White man, unknown, and a Papago killed by Apaches." Over the other grave we wrote: "Tarbox."

We had just finished the burial when a party of Americans, escorting two wagons, rode in sight. They were on their way to Fort Buchanan, where they hoped to discover the *caches* in which commissary stores had been hidden on the abandonment of the country. Happening to ask them whether Mr. Richmond Jones, superintendent of the Sopori Company's property, was still in Tucson, I was told that he had left that town for the Sopori early on the previous day.

It seemed that Jones might have reached the *Canoa* in time to be in danger from the Indians, so we began a search for his body in the neighborhood, and before long a call from one of our number brought us to the spot where it lay. A bullet entering the breast, two large lances piercing the body from side to side, and a pitchfork driven as far as the very forking of the prongs into the back, told the manner of his death. Wrapping the body in a blanket, we laid it in one of the wagons and turned toward Tubac. Finding the spot where Rhodes had left the road in his flight from the Indians, Poston and I followed the tracks till we reached the scene of his desperate fight. The place was exactly as Rhodes had described it, and the *charco* was covered with branches cut loose by the Apache bullets, while the ground at the entrance was still soaked with blood.

At Tubac we buried Jones. His home had been in Providence, R. I. Like Grosvenor, a true friend of the Indians, he fell by them a victim to vengeance for the treachery of the white man. The cry of Sopori, raised when the Indians left Rhodes, was now explained. They knew that in Jones they had killed the superintendent of that ranch, and they were impatient to reach the place and drive off its large drove of horses and cattle before the arrival of any force large enough to resist them. This they effected by killing the herdsmen.

The next morning, bidding good-by to Tubac, Poston and I returned to the Heintzelman mine. I was to pass a week there, for the purpose of examining and reporting on the property; but hearing that a wagonload of watermelons had arrived at Arivacca, and having lived on only jerked beef and beans for nearly a year, I determined to go on with Poston and pass a day at the reduction works. It was arranged that two of the Americans should come from Arivacca the next morning for letters. But the letters not being ready, their departure was postponed till the following morning. About an hour and a half after these two men had left Arivacca they galloped back, showing in their faces that something awful had happened.

"What is the matter?" asked Poston.

"There has been an accident at the mine, sir."

"Nothing serious, I hope?"

"Well! Yes, it's very serious."

"Is any one injured—is my brother hurt?"

"Yes, they're all hurt; and I am afraid your brother won't recover."

My friend dared to put no more questions. The men told me the whole story in two words—"all killed."

Mounting my horse, which had already been saddled to carry me to the mine, I returned quickly with the two men. We found the bodies of Mr. John Poston and the two German employees, while the absence of the Mexicans showed plainly who were the murderers. I heard the history of the affair afterward in Sonora. A party of seven Mexicans had come from Sonora for the purpose of inciting the *peons* at Arivacca and the mine to kill the Americans and rob the two places. They reached Arivacca the same day that Poston and I arrived, and, finding the white force there too strong, had gone on to the mine. Here they found no difficulty in gaining over the entire Mexican force, including a favorite servant of Mr. Poston. This boy, acting as a spy, gave notice to the Mexicans when the white men were taking their *siestas*. Without giving their victims a chance to resist they murdered them in cold blood, robbed the place, and left for Sonora.

They had stabbed Poston's brother and one of the Germans as they were sleeping in different rooms.

The other German, who had been our cook at the Santa Rita, and had stood bravely by us to the end, lay rolled up in blankets for protection from bullets fired through the window.

Laying the bodies in a wagon just arrived from Arivacca, we returned to that place. I found that during my absence the *peons* had attempted the same thing at the reduction works, but being detected in time by the negro cook they were put down. That evening we had another burial, the saddest of all, for we committed to the earth of that accursed country the remains not only of a friend but of the brother of one of our party.

I will add here that the accident which so nearly proved fatal to Washburn on the desert in all probability saved his life, since by delaying his return to the Heintzelman mine, where he made his home, it saved him from the general assassination.

After this occurrence we both abandoned our proposed journey, and determined to leave the country by the nearest open route. The events of the past week, added to all that had gone before, began to tell on my nerves, and I felt unequal to the task of making a dangerous summer journey of over one thousand miles through Mexico.

I was repeatedly urged by the officers at Fort Buchanan to go East with the regiment as the only way of escaping. I copy a treasured letter from a warm friend, Lieutenant Evans.

Fort Buchanan,
July 10, 1861

My dear Mr. Pumpelly:

This Post and Fort Breckenridge are to be abandoned immediately and all the troops are to go at once to Fort Fillmore. We are packing up now, but shall probably not get off for a week yet; I am sorry that I cannot name the exact day of our departure. All the troops go together, and Lt. Moore will be in command. If you propose to go Eastward, you and Mr. Robinson had better come up and go with us. We shall be most happy for your company.

Report states 600 Texans at Fort Bliss, with six pieces of artillery, threatening Fillmore; so you see the necessity for our hurry. Our Regiment (the 7th), as well as the 5th Inf. now in the Department, is ordered to Fort Leavenworth, as soon as relieved by New Mexican volunteers, 2,000 of whom have been called out. Things look rather gloomy for Arizona, I must confess; but I hope that better times are yet in store for the country. Col. Canby, an energetic and loyal officer, is now in command of the Department; and you may rest assured that the Texans will find no easy job to whip him.

Regards to Mr. Robinson and believe me,

Very truly yours, etc.,
A. W. Evans.

R. Pumpelly, Esq.,
Santa Rita Mining Co.

However, the arrival of a Spaniard whom we knew well decided our route. He brought the news that a vessel was to arrive at Lobos Bay, on the Gulf of California, to take in a cargo of copper ore. So we determined to leave with him for Caborca, on our way to Lobos Bay. Indeed, the only route open to us lay through Sonora, as it was out of the question for two men to think of taking the ordinary routes through Arizona.

The day after the funeral we put our baggage into the returning wagons of the Spaniard, and following these, on horseback, left Arivacca. Our own party consisted of Poston, myself, and the colored cook. Crossing the Baboquiveri plain we passed around the southern end of the Baboquiveri range. Here I entered again upon the great steppe, which, stretching northward through the Papagoria, and southwestward to the Altar River, had so lately been the scene of our eventful journey. On the skirt of this plain we encamped for the night.

The effect of the grand scenery and wonderfully clear atmosphere of this strange land is to intensify the feelings of pain or pleasure which at the time sway the traveler's mind. Thus, while under ordinary circumstances the surroundings of this our first encampment would have been engraved on the memory with all the shading and coloring of a sublime and beautiful night scene, the events of the past week formed a background on which the picture of that night remains impressed with all the unearthly gloom of an inferno. Above us the sky was clear. Then a densely black cloud hid the mountain and a storm burst. The heavens resounded with the crash of thunder. Forked columns of lightning pierced the darkness revealing the weird rock forms and frowning cliffs of the Arizona Mountains. Then all changed quickly; the clouds vanished and again the stars shone in the silent night. I felt that I had left the gate of hell, that in that half-hour, in that cloud, there had been at work all the evil spirits that had controlled the minds of men in the land I was leaving.

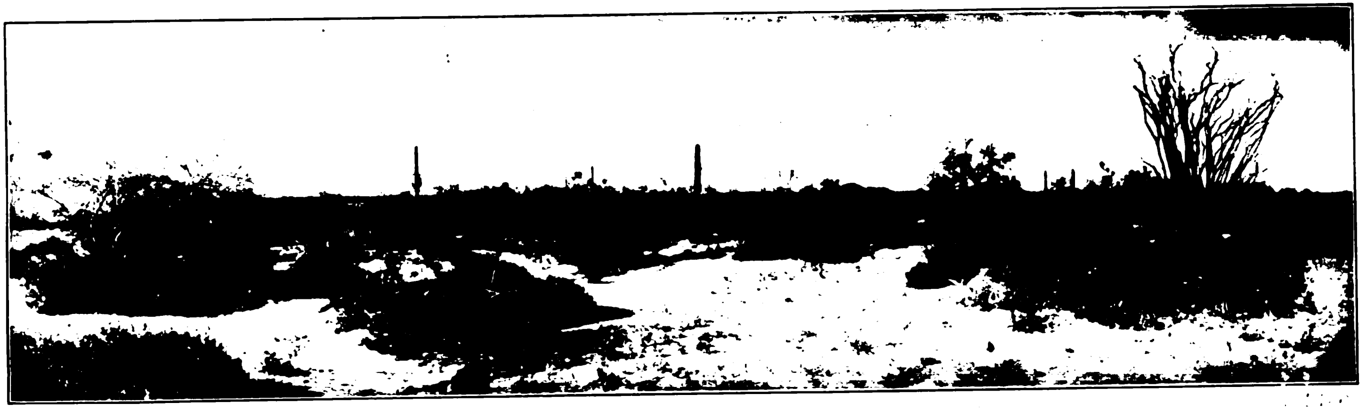
Our route lay for two or three days, as far as the Altar River, over hard gravelly plains, generally bearing grass and scattered *mesquite* trees and cacti. The Altar River was a mere rivulet at nearly all seasons, but along its course were many places which might become flourishing ranches, were not all attempts at industry rendered hopeless by the raids of the Apache. Following the river we reached Altar, a village built of adobes, containing a population of about 1,900 souls, including the ranches of the immediate neighborhood. A solitary date palm was evidence of an attempt of the early missionaries to introduce fruits adapted to the climate.

On the fourth day of our journey we reached Caborca, a village containing about 800 inhabitants. It was in the fine old mission church at this place that the filibustering party under Crabbe met their fate.

Here we were welcomed by an acquaintance, Don Marino Molino, who offered us the hospitality of his house. Much to our disappointment we learned that the coming of the expected vessel to Lobos Bay had been postponed for several months, and it became necessary to choose another way out of the country. Our choice of routes was limited to two: the one leading to Guaymas, about 200 miles distant, and the other to Fort Yuma, nearly as far to the northwest, on the Colorado River.

While we were in Caborca some of the former *peons* of the Heintzelman mine, who had been of the assassinating party, were seen walking in conscious security through the streets. We heard that they not only boasted openly of their part in the murder, but that they had formed a party of twelve desperadoes to follow and waylay Poston and myself, for the sake of the large quantity of silver we were supposed

Near the Tule Tank on the Old Yuma Trail



The Tule Desert

to have in our baggage. Our friends warned us of the danger, and advised us to increase our force before continuing the journey. At the same time a report was brought in by a Mexican coming from California that Fort Yuma was to have been already abandoned, and that owing to two successive rainless seasons many of the usual watering places on the desert route to the Colorado were dry. There was one distance, he said, of 120 miles without water, and on this some of the party to which he belonged had died from thirst.

We decided, however, on this route, as, besides leading directly to California, it exposed us mainly to the dangers of the desert and not of Indians. One thing caused us much uneasiness: this was the question as to how we should cross the Colorado River, supposing the fort were really abandoned. That river is deep and broad, and the current rapid; and the abandonment of the fort would, considering the hostile character of the Yuma Indians, necessarily cause the abandonment of the ferry also.

There was in Caborca an American, named Williams, who had been found some weeks before, dying from hunger and thirst, on the shore at Lobos Bay. Brought into Caborca, and kindly treated by an old lady of that place, he had already recovered, and was seeking an opportunity to leave the country. According to Williams's story, he had formed one of a party of three who had built a boat on the Colorado River, intending to coast along the Gulf of California to Cedros Island, on a "prospecting" expedition for supposed hidden treasure. Arriving at Lobos Bay, he said, they had been wrecked; but he was unable to account for the subsequent movements of his companions. We believed his story, and, liking the appearance of the man, engaged him to go with us to California, giving him as compensation an outfit consisting of a horse, saddle, rifle, and revolver. As soon as we had engaged a Mexican, with several pack-mules, we were ready for our journey. Our party now consisted of four well-armed men, not counting the Mexican muleteer.

Several friends escorted us as far as our first encampment, which we reached in the night, and left us the following morning, but not without repeatedly warning us to keep an unceasing watch for the party that was sure to follow us.

The first inhabited place we passed was the Coyote gold placer, near which are the ancient Sales and Tajitos gold and silver mines, and, in the neighboring Vasura Mountains, the Coyote copper mine.

The next settlement in which we encamped was Quitovac, a place which had some celebrity for its gold placers before the discovery of that metal in California. It had been our intention to take the route to the Colorado River, leading through the Sonoita gold district, in preference to passing through San Domingo. These routes, diverging at a point a few miles beyond Quitovac, continue parallel to each other, but separated by mountains, till their reunion on the Gila River. When asked at Quitovac which route we proposed taking, we had given that by Sonoita as our choice. But as soon as we took the road in the morning it became evident that a party of horsemen had passed through Quitovac during the night, stopping for only a short time. The tracks showed them to be twelve in number, and when on reaching the fork of the trails we found that, after evident hesitation, they had taken the Sonoita route, we changed our plan and turned into that leading to San Domingo, which place we reached in a few hours. In this settlement, containing two or three houses, the last habitations before reaching the Gila River, we found Don Remigo Rivera, a revolutionary Sonoranian general. Don Remigo had withdrawn with his small force to the United States boundary, where he was awaiting a favorable opportunity for action. Leaving his men at Sonoita, he had come to pass a few days at San Domingo. As this gentleman had frequently been a guest at the Santa Rita, and at Colonel Poston's house, we received from him a cordial reception, and dismounted to breakfast on *pinole* and watermelons. While thus engaged a courier rode up at full speed, and was closeted for a few minutes with our host. This man, Don Remigo informed us, brought news of the arrival, in the neighborhood of Sonoita, of twelve men, whose names he gave. It was supposed by his friends that they had come to assassinate the general.

"That is not likely to be their object," said Don Remigo, "since though they are cut-throats, they belong to my party, and have served under me. It is more probable," he continued, "that they are following you, as I have heard of a plot to waylay you."

Our suspicions of the morning were thus confirmed, and the necessity of being prepared for an attack became more apparent.

CHAPTER XX

THE OLD YUMA TRAIL

San Domingo lies on the boundary, and the trail leaving the ranch keeps for a few miles south of the line, and then enters the United States territory. To this point Don Remigo accompanied us, to show us the last watering place before entering upon the desert. As we returned from this spring to the road two men were seen, who, having passed us unnoticed, were traveling north. They proved to be two Americans, on their way to Fort Yuma, and they readily joined us. Our party now numbered six well-armed men, and we felt ourselves able to cope with fifty Mexicans. The size of our force now rendered it possible to keep a watch without much fatigue to any member of the party; but our greatest danger lay in the exposure of our animals, and consequently of ourselves, to death from thirst. Soon we would have to enter upon the broad, waterless region, and the bones of animals already bordering our trail warned us of the sufferings of past years.

One night, as we were skirting the desert along the base of a barren *sierra,* Williams and I had fallen behind the caravan, when my companion, from overuse of our Spanish brandy, began to talk freely to himself. We were just approaching a bold, high spur of the *sierra,* while immediately before us the trail wound between immense fragments of rock fallen from the mountains above. Williams stopped his horse, and looking at the rocks, said, half-aloud:

"Here's where the d——d greasers overtook us, and we whipped them."

As the man had said that he had never been over the road before, I thought it at first only the talk of a drunken man.

"I thought you had never been this way before, Williams," I said to him.

"Maybe I haven't; maybe I dreamt it; but when you get by that spur you'll see two peaks on the top of the *sierra*. Them's the 'two sisters.'"

We soon passed the point of the spur, when, looking toward the top of the mountain, I saw two tall rocks rising from the crest. My interest in this man was now excited, indeed I had already had a suspicion that he was not what we had taken him to be. Determined to learn more, I passed him my flask. We rode on together talking about Sonora, though not very coherently on Williams's part. After riding a few miles we came near some thickets of *mesquite* and *palo-verde* trees, and I observed that my companion had become attentive to the surroundings. In answer to my questions he replied:

"I'm looking for an opening on the left side of the trail. There's a square opening with a big *mesquite* at each corner, and a long branch goes from one corner across to the other. Under the branch there's a mound, I guess."

He rode ahead, and soon turned out of the trail.

Following him, I entered by a narrow path and found myself with him in a square opening as he described. The clear moonlight shone into the spot and cast our shadows over the mound.

"He's rotten now I reckon," my companion muttered. "I told him I'd spit more than once on his grave and by G—d I've done it."

"What was his name, Williams?" I asked, passing the flask again.

"Charley Johnson."

"What did you kill the poor devil for, in this out-of-the-way place?"

"An old grudge, about a Mexican woman, when we were with Fremont. I told him I'd spit on his grave, and now I've done it. We had a split here about a scarf—and I got the scarf, that's all."

"Who kept the priest's robes?" I asked, looking him full in the face.

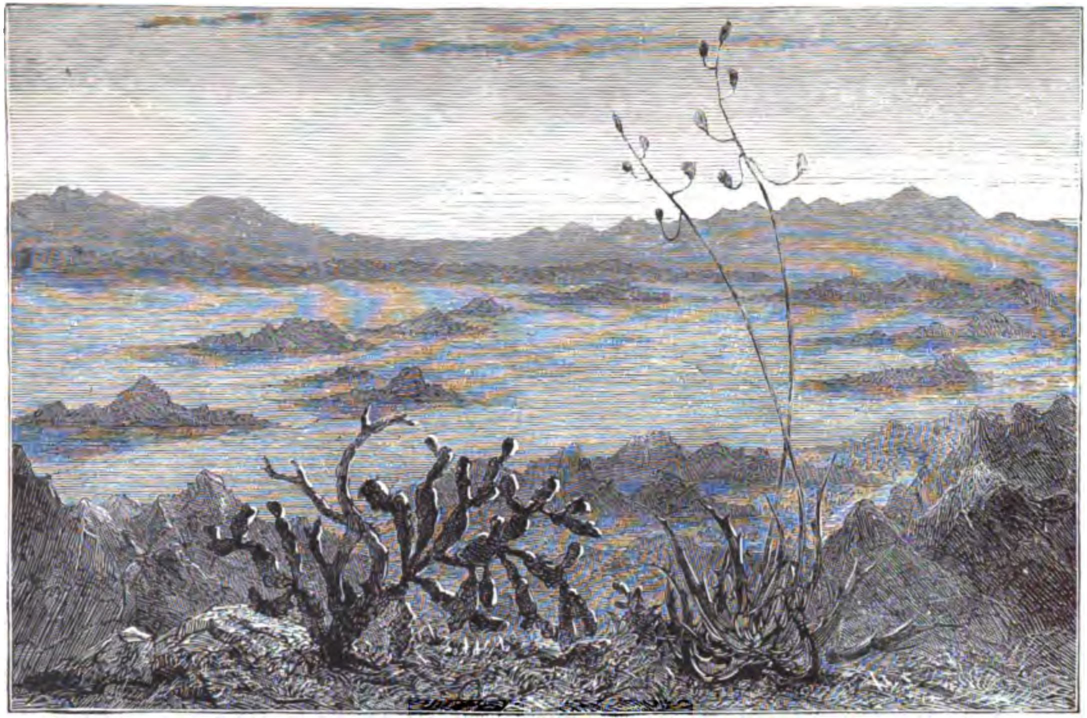
At these words Williams started, and made a motion toward his pistol; but seeing that I had the advantage, inasmuch as my hand rested on my revolver, he simply exclaimed:

"What the hell do *you* know about the priest's robes?"

"Only that you were one of Bell's band," I answered quietly.

The suspicions I had formed as soon as Williams had betrayed a knowledge of the route were fully confirmed. Our quiet-looking companion had been one of the band of cutthroats which, under the notorious Bell, had been the terror of California soon after the discovery of gold. This party had gone to Sonora, about eight years before the time of our journey, under the pretext of wishing to buy horses. Stopping at a celebrated gold placer near Caborca, they were hospitably entertained at the neighboring mission by the old priest and his sister, who were living alone. In return for this kind reception they had hung the priest, outraged the lady, and robbed the rich church of several thousand dollars in gold. The inhabitants of Caborca had told me of this occurrence, still fresh in their minds, and of the bravado of the party in riding through Caborca using the priestly robes as saddle blankets. Before a sufficiently strong party could be raised to follow them they had escaped to the desert, and, when finally overtaken, were found too strong for their pursuers, who were driven back.

My experience on the border with men of the class to which Williams belonged had shown me that to manage them, or, when it became necessary, to associate with them, one must



Daybreak on the Desert

From a sketch in the report on the United States and Mexican Boundary.

assume, to a certain extent, their tone. This I had done with my companion, and by this means and the aid of the brandy flask I obtained his confidence. He acknowledged that he had been one of Bell's men, and had been in the expedition into Sonora. When he was recently brought into Caborca nearly dead he was taken care of by the sister of the priest whom they had hung, and Williams lived in constant fear that the lady would recognize him. Not only had he escaped recognition, but he told me, as an excellent joke, that the Señora had given him a letter to give to her two daughters, who were living in California.

He was, at the time of our journey, a refugee from California, having murdered a man in San Francisco. The history he gave me of his life while with Bell's band was a combination of awful crimes and ludicrous incidents that would swell a volume. I never knew but one ruffian who more surely deserved hanging than this companion whom we had taken with us to increase our safety. The other man was Rogers, whose story I have written in previous pages.

I thought best to warn only Poston about Williams, but when Williams stood guard at night I slept lightly. Indeed, the events of the past three months had caused me to awaken at the slightest sound. I lay always with my revolver in my hand. A sound made me cock it instantly. It happened once that in awaking I realized that I had been sleeping with my finger on the trigger of a cocked pistol. Such perfect guard had been kept by the subconscious action of the brain.

In a few days we approached the worst part of the desert; the watering places became more separated and the supply smaller. Our route lay over broad, gravelly plains, bearing only cacti, with here and there the leafless *palo-verde* trees, the horrid *cholla,* and the rarely-failing greasewood bush. In the distance, on either side, arose high granite mountains, to which the eye turns in vain for relief. They were barren and dazzling masses of rock. Night brought only parching winds, while during the day we sought often in vain for shelter from the fierce sun-rays.

I leaving the Santa Rita mines I had brought away, as mementos of Grosvenor, the miner's compass and the chemical thermometer that he had treasured in memory of his friend, Bronkow, murdered at the San Pedro mine. This thermometer was a glass rod about one-quarter of an inch thick and fifteen inches long, having no case nor any kind of protection. I kept it under my saddle-pillow at night, and carried it, by day, rolled up in my blanket tied behind the saddle. Every night and every morning I was surprised to find it whole, and it remained so till we reached San Francisco, when I had a tin case made for it. I have it still after carrying it through all the exposures of a very rough life around the world, though in a tin tube after leaving San Francisco.

This thermometer showed that the temperature throughout the desert journey ranged between 120° and 130° F. in the shade day and night. The only shade we had by day was when we found wind-hollowed holes in the face of a rock. So intense was the heat that to touch the black barrel of a gun, exposed to the direct rays of the sun, meant a blistered hand.

On these vast deserts the sluggish rattlesnake meets the traveler at every turn. The most powerful inhabitant, his sway is undisputed by the scorpions and the lizards on which he feeds. One night we folded our blankets and lay naked on them with our saddles for pillows. Poston lay about two feet from me. We were talking when I moved slightly. A rattle sounded between us. We rolled away in opposite directions, jumped to our feet, and seized the still burning brands from the dying fire that had made our coffee.

A "horned" rattlesnake was just disappearing into a hole under my saddle. We caught his tail in time to break his back, which made him harmless.

The routes over these wastes were in places marked by mummified cattle, horses, and sheep.

With a feeling of much anxiety we encamped on the border of a *playa,* a depressed region covered with water after cloudbursts. We found a surface of dried mud crossed by ridges of shifting sand. From that camp on there lay before us a continuous ride of nearly thirty hours, before we could hope to find the nearest water on the Gila River, and it was not probable that our animals could bear up under the fatigue and thirst added to that they were already suffering from.

But during the night a dense cloud covered the neighboring mountains and there came a cloudburst, the first rain that had fallen on this desert for more than two years. Never was a storm more welcome. Both we and our animals enjoyed heartily the drenching. Before daybreak the sky cleared, and with the rising sun began the heat of another day. A broad sheet of water, only a few inches deep, covered the *playa* for miles before us, and banished from our minds all fear of suffering. Across the center of this great plain there stretches, from north to south, a mass of lava about a mile wide, and extending southward as far as the eye can reach. On this lava stream there stand many volcanic cones, 100 to 300 feet high.

On the second day after the rain the water had almost everywhere disappeared, having been evaporated by the heat and dryness of the air. We were now approaching the *Tinaja Alta,* the only spot where, for a distance of nearly 120 miles, water might at times be found.

It was a brilliantly moonlit night. On our left rose a lofty *sierra,* its fantastic sculpturing weird even in the moonlight. Suddenly we saw strange forms indefinable in the distance. As we came nearer our horses became uneasy, and we saw before us animals standing on each side of, and facing, the trail. It was a long avenue between rows of mummified cattle, horses, and sheep.

Nothing could be more weird. The pack animals bolted, and Poston and I rode through with difficulty.

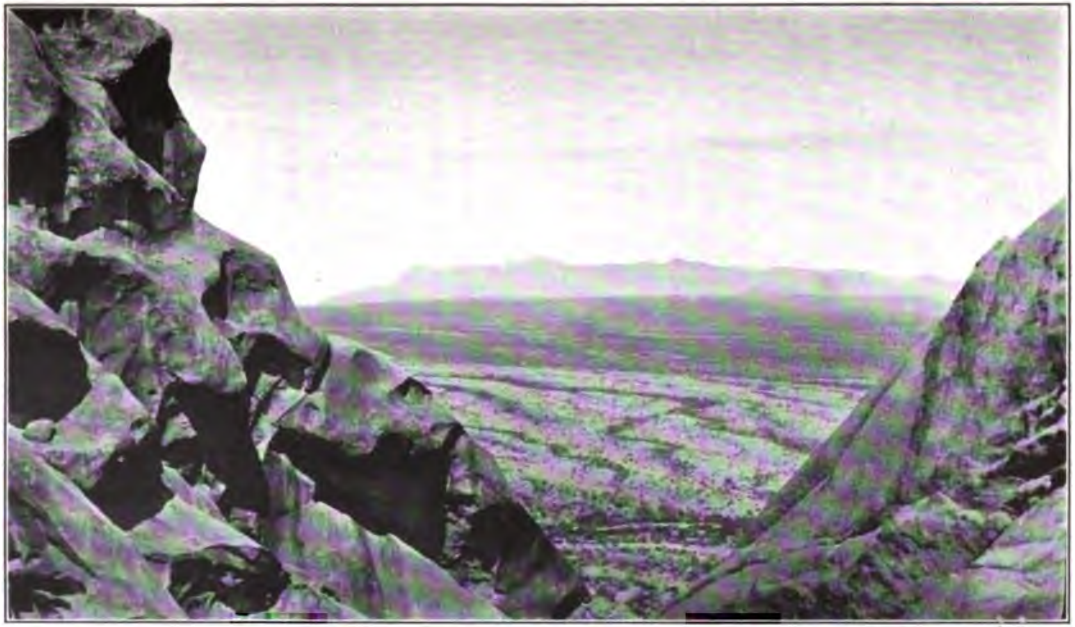
Ten or twelve years before, during the time when meat was worth in California almost its weight in gold dust, it paid to take the risk of losing on this desert nearly all of a herd if a few might survive.

If no water was found at the *Tinaja Alta* most or all of the animals and some of the men were sure to die.

In the intensely dry and pure air there was no decomposition; all the dead simply became mummies.

This weird avenue had been made by some travelers with a sense of humor, and with a fertile imagination which had not been deadened by thirst.

Our next camp was made at the *Tinaja Alta* or high tanks. Here, in a steep ravine in the mountains, there is a series of five or six large pot holes, one above the other, gouged in the granite bed of the gorge. This gorge was apparently the outlet onto the desert of a system of drainage of the *sierra*. It had been carved either by erosion in a long past period of a different climate, or by occasional cloud-bursts happening through scores of millenniums. After a rain these holes are all filled, but as the season advances the lower ones become empty, and the traveler is obliged to climb to the higher tanks and bail water into the one below him, and from this into the next, and so on until there is enough in the lowest to quench the thirst of his animals. The higher tanks are accessible only at risk of life. After a succession of dry seasons it sometimes happened that travelers arrived here already dying from thirst. Finding no water in the lower holes, they climbed in vain to the higher ones, where, perhaps, exhausted, they fell from the narrow ledge, and the tanks, in which they sought life became their graves.



Looking East from a High Tank of the Tinajas Altas

Here I found a large pair of horns of the Rocky Mountain sheep, or "big-horn," that had doubtless strayed too far from the usual watering place.

A forced ride of a day from the *Tinaja Alta* brought us to the Gila River, at one of the stations of the abandoned overland stage route. Here a piece cut from a newspaper, and fastened to the door of the house, first informed us of the defeat of the North at Bull Run. Almost the last news we had received before this from the East was of the firing on Fort Sumter.

Our route now lay along the Gila River. Stopping in the afternoon, we sought relief from the heat by taking a bath in the stream; but the water which we had found pleasant in the morning was now unpleasantly warm, and on trying it with the thermometer the mercury sank from 117 degrees in the air to only 100 degrees in the water, which was thus two degrees above blood-heat.

During the night we were traveling by the bright light of the full moon when, looking south, I saw a black wall rising like a mountain of darkness, and rapidly hiding the sky as it moved toward us. In a few minutes we were in intense obscurity, and in the heart of a sandstorm which rendered all progress impossible. Dismounting, we held the terrified animals by the lassos, and sat down with our backs to the wind. We had repeatedly to rise to prevent being buried altogether by the deluge of sand. When the storm was over the moon had set. This obliged us to unload our half-buried animals and camp for the night.

The next morning we reached Colorado City, opposite Fort Yuma on the Colorado River. This place, consisting of one house, had a curious origin, which was told me by Poston, who was also the founder. Soon after the purchase of Arizona my friend had organized a party and explored the new region. Wishing to raise capital in California to work a valuable mine, he was returning thither with his party when they reached the Colorado River at this point. The ferry belonged to a German named Jaeger, whose fare for the party would have amounted to a considerable sum. Having no money, they encamped near the ferry to hold a council over this unexpected turn of affairs, when my friend, with the ready wit of an explorer, hit upon the expedient of paying the ferriage in city lots. Setting Ehrenberg, the engineer of the party, and under him the whole force, at work with the instruments, amid a great display of signal stakes, they soon had the city laid out in squares and streets, and represented in due form on a sketch, not forgetting water lots and a steam ferry. Meanwhile Jaeger sat smoking his pipe in front of his cabin on the opposite shore, and, watching the unusual proceeding, his curiosity led him to cross the river. He began to question the busy surveyors, by whom he was referred to my friend. On learning from that gentleman that a city was being founded so near to his own land the German became interested, and, as the great future of the place was unfolded in glowing terms, and the necessity of a steam ferry for the increasing trade dwelt upon as well as the coming of a transcontinental railway, he became enthusiastic, and began negotiations for several lots. The result was the sale of a small part of the embryo city, and the transportation of the whole party over in part payment for one lot. I must do my friend the justice to say that he afterward did all that could be done to forward the growth of the place.

"How about the city?" I asked Poston.

"There it is; we'll breakfast in it," he answered, pointing to the miserable house.

And we did; and in breakfasting, with the exception of the proprietoress, our party formed the entire population of a city eight years old.

Our landlady, known as the "Great Western," no longer

Run in Gorge Between Tanks. Tinajas Altas.

young, was a character of a varied past. She had followed our army throughout the war of 1848 with Mexico. Her relations with the soldiers were of two kinds. One of these does not admit of analysis; the other was angelic, for she was adored by the soldiers for her bravery in the field and for her unceasing kindness in nursing the sick and wounded.

Having heard her history from Poston, I looked with interest on this woman as, with quiet native dignity, she served our simple meal. She was a lesson in the complexity of human nature.

We crossed the river and made our quarters at the ferry house. Our party separated, the colored cook going, with the muleteer, back to his Mexican wife in Sonora. The two Americans who had joined us on the road lived near the fort. With their departure our number was reduced to three.

The garrison was still at Fort Yuma, and the officers invited Poston and me to the noon meal. As this was several hours off, they offered gin cocktails.

We had brought with us a jug of Catalan brandy of which Poston and I had used little. But the cocktail was most refreshing. It was followed by another and yet another and yet a long series of "anothers." Through that day I had an intense craving for cocktails. I began to fear that I was establishing a habit; the craving alarmed me.

The next morning I was normal. The spirits seemed to have been needed after the exhausting journey in the intense heat of the days and nights on the desert.

During our stay of several days we saw a good deal of the Yuma Indians, a tribe which, till within a few years, was celebrated both for its fierceness and for the beauty of its women. But this quality was already causing the destruction of the tribe, and while we were there we saw the funeral ceremonies of the last of the dark beauties. Unlike most of the Indians, the Yumas burned their dead. In this instance a pile of wood about eight feet long, and four or five feet wide, left hollow in the center to receive the body, formed the funeral pile. The body, wrapt in the clothing worn in life and borne by relations, was placed in the pile, which was then lighted. As the flames increased friends approached the spot, with low and mournful wailing, to feed the fire with some article of dress or ornament. One after another the young Yuma women were disappearing, victims to disease brought by the troops, and which, it seems, the military physicians did little to prevent the spread of.

Both the men and women of this tribe were large and well built. The women wore a short skirt made of strings of bark, fastened to a girdle around the waist, and reaching to above the knees. The most important weapon of the warriors was a short club.

After resting a few days we made preparations to continue our journey to California. An emigrant who, with his wife, had been forced by the secessionists to leave Texas agreed to carry our baggage in his wagon. He left the ferry in the morning, while we were to start in the evening, and overtake him at the first encampment on the desert. During the day there arrived a man whom I knew to be a notorious cutthroat. This fellow, a tall one-eyed villain, who was known as "one-eyed Jack," I knew must have just come from Arizona. He wore trousers of which one leg was white and the other brown. It was soon evident that the new arrival and Williams were old cronies, and they passed most of the day together. Before we left in the evening I asked Williams the name of his friend, and received for answer that he was called Jack, that he had just come from California, and was going to Arizona.

We left the ferry about dusk, but before we had gone half a mile Williams turned back, saying he had left something and would overtake us. Our route lay for several miles along the west side of the Colorado, and Poston and I rode to the point where the road leaves the river to turn westward. Here we descended the bank to water the horses, and dismounting, waited nearly an hour for our missing companion. We finally started without him, and, leaving the river, began to cross the wooded bottom-land toward the desert. We had ridden a short distance when a bush, freshly fallen across the road, seemed to be a warning that the route was impracticable further on. Poston remained by the signal, while I looked in vain for another way through the underbrush; it was evident that the bush had been cut since the passage of the wagon that morning. I had started through the open wood to strike the road some distance beyond when my attention was drawn, by my horse's uneasiness, to a mule tied in the woods, and to a man stretched out on the ground. At a glance I saw from a distance, by the different colored legs of the man's trousers, that "one-eyed Jack" was near me. Without stopping I went to the road, and, following this back, came upon Williams's horse fastened to a tree, and near him his owner apparently asleep. On being asked what the bush meant, he replied that he had put it there that we might not pass him while he slept; that was the last place where we would find grass he said, and, as there would be no water for thirty miles, we must camp there for the night. In the meantime Poston rode up. The truth had already entered my mind. But dismounting, while I pretended to unbuckle my saddle-girth, I asked Williams where he had been.

"I went back to the river for my canteen."

This I knew was a lie, for I had seen him drink from it as we left the ferry.

"When is your one-eyed friend going to Arizona?" I asked.

"He's gone already; I saw him across the river," was the cool reply.

The villain's coolness was admirable, but the whole plot was clear. Jumping into the saddle, and making a sign to Poston, I declared my intention of riding on to the emigrant's camp. As Williams swore he would go no further that night, we left him and soon entered the desert. We both decided that Williams and his friend had conspired to kill us while we slept, and then to murder the emigrant and his wife, and get possession of the silver which had attracted the Mexican bandits.

Leaving the woods, which form a narrow strip along the Colorado, we passed a belt of shifting sand several miles broad, which is gradually approaching the river and burying the trees.

We reached the camp of the emigrant at about 3 A.M., and, entering the abandoned station of the Overland Stage Company, slept soundly till roused by the noise of the preparation for breakfast. After we had eaten and begun to saddle our animals Williams rode up, and, entering the house, rather roughly told the wife of the emigrant to make him a breakfast. Some sharp words passed between us, and Williams left the house with an oath and a muttered threat. Poston beckoned to me, and we went out. Our companion stood a few yards from the door, with his back toward us, and did not notice our approach. Poston, drawing his revolver, called Williams by name. Taken by surprise he whirled around, and, catching sight of the revolver, made a motion toward his own, but he was too old a hand to draw a pistol against one already pointed at him.

"Williams," continued Poston, in the coolest tone, "Pumpelly and I have concluded that it wouldn't be safe for you to go to California. The last man you killed hasn't been dead long enough, and they have a way there of hanging men like you. We don't want to shoot you, for we haven't time to bury you. You may keep the outfit, but you had better go back and join your friend, "one-eyed Jack," down there by the river. You and he can't kill us, and you can't get our silver."

With a laugh Williams held out his hand.

"Give us your hand; you're a d——d sight sharper than I thought you was; so long!" and jumping into the saddle, he rode away by the road he had come. We watched him as he went, and could not help laughing at the fellow's cool impudence. I have given this scene in full as an illustration of the character of a representative of one type of the frontier ruffian.

The desert we were now crossing begins in Lower California, and stretches several hundred miles northward, with a width of 200 miles, between the Sierra Nevada and the Colorado River. Portions of this great area are depressed below the level of the sea. Where we crossed it, partly in Lower California, it was the worst of deserts. Its center, along our route, was a broad plain of fine sandy clay, strewn with fresh-water shells, and appeared to be the dry bed of a lake, which was once supplied from the Colorado River. Away from this plain the surface was covered with ridges of shifting sand. The wells dug by the Overland Stage Company yielded a sulphurous and alkaline water, so fetid as to be undrinkable, excepting when the traveler was driven to it by fear of death from thirst. Indeed, it often induces a disease which sometimes proves fatal.

On no desert have I seen the mirage so beautiful as here.

Nearly forty years later the Colorado River cut its way into the depression and formed the broad Salton Lake.

Riding one night we saw before us a camp-fire, by which we found an American and one Mexican. As meeting a traveler on a desert is always an event, we dismounted and smoked while the others were eating. The American was on his way to Sonora, and the Mexican was his guide. We told him how dangerous it then was to travel through the intermediate country, and in Sonora.

"Well, I guess I'm pretty much proof against bullets and arrows, stranger; just feel here;" he replied, putting his hand on his breast.

We felt his leather shirt, and found it double, and lined all round with disks of something heavy.

"Those are all twenty-dollar gold pieces. I'm pretty much proof," he continued. It was useless to give further warning to a man who published the fact that he was encased in gold, so we left him to his fate. We heard afterward, all the way to Los Angeles, that he had everywhere boasted of his golden armor; and, later still, that he had been murdered by his guide. This man was the associate of a man named Palmer, with whom he had caused an excitement in San Francisco about a rich silver mine they pretended to have discovered in a volcano in the Sierra Nevada. They decamped after raising the large sum of money they demanded before showing the vein. The body of Palmer was discovered soon afterward in Tulare County.

I must give the interesting sequel to this. When we were told of the affair again in San Francisco, some one showed Poston and me one of the specimens on the strength of which these fellows had got the large advance payment. I saw at once, from the inclusions of small bits of burnt clay, that the "ore" was artificial. Moreover it looked like an old acquaintance. Showing it to Poston, I said:

"Poston, that looks like the volatilized lining of the chimney of my cupelling furnace, when I was recovering the silver from your arsenical and antimonial ore. There remained a deposit a half an inch thick just like this."

Poston answered:

"By Jove! I brought a ton or more of that ore here several years ago. Let's see if the furnace is still standing."

We found the furnace with the same very rich lining, and we found where the men had broken off the specimens.

Finally, in the beginning of September, we approached the western edge of the Colorado desert. Traveling by moonlight, we entered the valley of Carisso creek, by which the desert sends an arm, like an estuary, into the mountains which limit it. As though fearful that the traveler may forget the horrors of a thousand miles of journey over its awful wastes, the desert, as a last farewell, unfolds in this dismal recess a scene never to be forgotten. Already from the plain, through the clear moonlight, we saw the lofty range bordering the waste, a barren wilderness of dark rock rising high above the gray terraces of sand that fringe its base, great towering domes and lowering cliffs rent to the bottom and clasping deep abysses of darkness.

All night long we forced our way through the deep sand of the gorge. Passing skeletons of animals glittering in the moonlight, scorched by hot blasts ever rushing up from the desert behind us, we seemed wandering through the valley of the shadow of death.

The next day we reached the summit of mountains near the coast, and felt the breeze from the ocean. In an instant both horse and rider raised their drooping heads, and, quickened as with a new life, dropped the accumulated languor of the long journey.

As we descended the western declivity of the mountains we came upon a field of big watermelons. Think of it—watermelons galore, after months of desert thirst! There were herds of cattle and magnificent live-oaks. It seemed impossible that the cheerful land we were traversing should be a frame to the scene of desolation we had left the day before.

Our route to Los Angeles lay through the stock ranches which formed, with the vineyards, the principal industrial feature of the southern part of California. Almost the entire population consisted of emigrants from the Southern states, and so strong was the hatred felt toward the North, since the news of the rebel victories, that a Northerner was as unwelcome as he would have been in the worst parts of the South.

With our arrival at Los Angeles, which was then a village of adobe houses, ended our journey on horseback. A coasting steamer took us to San Francisco. Colonel Poston returned by the isthmus to the Eastern states, and I passed two or three months in visiting some of the principal mining districts, preparatory to resuming the practice of my profession. These excursions were made in company with my fellow student at Freiberg, James D. Hague.

In leaving the Santa Rita mines I took as a memento a bar of twenty-eight ounces of the last silver I had refined. This was all that I ever received in lieu of the $1,500 salary under my contract. On the desert Poston gave me $300, saying that he advanced it as director in the company. There was, however, a sequel to this payment.

It was some time before my parents could learn that I was alive, and I could receive the money they sent me.

CHAPTER XXI

ENTER JAPANESE SERVICE

Shortly before my arrival in San Francisco the Japanese Government had instructed Mr. C. W. Brooks, their commercial agent, to engage two geologists and mining engineers for exploring a part of the Japanese Empire. Through a misunderstanding a copy of the correspondence, which passed through our Minister at Yeddo, having been sent to Washington, our own Government proceeded to make the appointments. By a pure coincidence I was chosen as one of the two men, both at Washington and at San Francisco, my colleague appointed from the first place being Dr. J. P. Kimball and from the latter Mr. W. P. Blake.

In preparing for this journey I became indebted to many kind friends, especially to Professor J. D. Whitney, of the State Geological Survey, and to his assistants, Messrs. Brewer and Ashburner, as well as to my fellow students at Freiberg, Louis and Henry Janin.

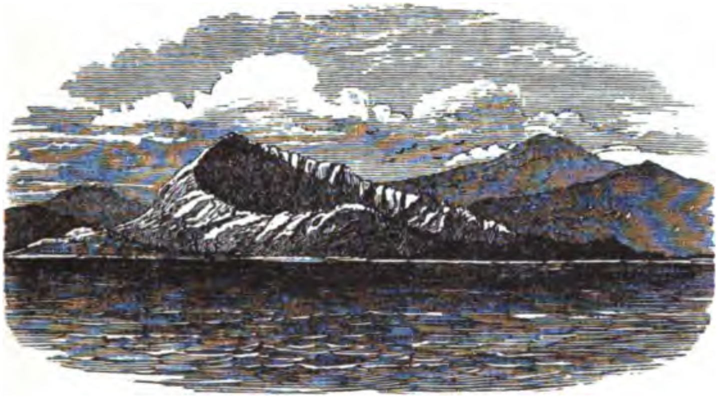
PACIFIC OCEAN

On the 23d of November, 1861, Mr. Blake and I went aboard the clipper-ship *Carrington*, which was bound to Yokohama by way of Honolulu. Among the passengers were Lady Franklin and her niece, Miss Craycroft. There were also a Mr. Gulick, and a woman, with a peculiar history, returning to her home in Honolulu. She had been married several years before to a missionary who went from the church to sail to the Sandwich Islands. She was to follow. She reached Honolulu only to wait through long months, and in the end to find that the ship bearing her husband was never heard of.

At midnight the friends who had come to see us off left the ship. With the hoisting of the anchor we cut loose from the New World, and, drifting through the Golden Gate, began the long voyage over the great ocean. The rising sun found us still in sight of the *Farellones,* and rocking in the long swell of a calm and glassy sea. Another clipper, also calm-bound, lay a mile or two from us, while in the distance the white sails of pilot boats and fishing smacks seemed to fan the horizon as they rolled with the monotonous motion of the swell. The day was nearly gone without bringing a breath of air when it became evident that the neighboring clipper and our ship were slowly but surely approaching each other. It was a large vessel, bearing only ballast, while our smaller craft was heavily loaded. Every roll of the long swell brought us nearer together, until it seemed as though every minute must bring the sharp bow of the great ship crashing through the frail side of the *Carrington.* Captain Mather sent for the passengers to be ready for escape, and ordered the crew on deck with axes in hand. Already the black hull of the other ship towered high above us, as she rose on the top of a roll, threatening sooner or later to crush us in her descent. The captains held a hurried council from their quarter-decks. As a last hope for their vessels, they decided that the *Carrington,* being the heavier laden, should drop anchor. This was done, for we were still over the bar; and almost at the same time a faint breath of air, barely perceptible to a landsman, moved our neighbor slowly off.

The *Carrington* had just made the shortest trip on record from Yokohama to San Francisco, having been less than twenty-seven days on the way, and we hoped that the present voyage would be correspondingly short, or certainly less than fifty days. But we were doomed to make the longest time between the two ports.

The first part of the voyage was marked by delightful weather, in the region of refreshing trade winds. I improved the opportunity for practicing navigation, and between this occupation and the usual amusements on shipboard the days passed quickly by. I had brought from San Francisco a sextant, a pocket chronometer, a "Bowditch's Navigator,"



Crater near Honolulu
From a sketch by the author

and a Mercator chart. Our skipper, who was brutal to all under him, had had a quarrel with the mate, and had ordered him below. When, after having taken the observations himself for a week or two, he found that I was observing every morning and noon, and plotting our course correctly on my chart, he gradually left the navigation to me.

On the 17th of December a peak of the island of Maui and soon after the island of Molokai were visible, and the next morning three peaks of Oahu. As we approached the last-named island the small but well-defined crater near "Coco head," and later that at Diamond point, rose from the surf, outposts of the great volcanic group we were entering. The following morning, having taken a pilot, we steered for the entrance to Honolulu. As we approached the island the scene was truly enchanting. A dense carpet of delicate green, like that of a newly-opened leaf, mantled the island, and, descending from the tops of the high hills, disappeared behind the long tufty walls of snowy-white surf-foam. Groves of cocoanut trees and bananas and taro-terraces formed the foreground, above which rose the green and densely-wooded hills of the interior.

As we were to remain only a day or two at Honolulu, we hastened to go ashore. Having letters to Dr. Judd, one of the original cabinet members instrumental in framing the Hawaiian Government, Mr. Blake and I received a cordial reception from that gentleman and Mr. Carter, and an invitation to make our stay at their houses. The day was spent in a pleasant ride to the Paré, a mountain pass celebrated alike for its magnificent view and for a desperate battle fought during the war which ended in the union of all the islands under one king. The road leading to this place winds up a broad valley, of which the sides sweep, with a gentle curve on either side, up to the foot of the high cliffs which walled it in. The valley was cultivated, while the ravines were filled with dense foliage, and every nook and ledge on the cliffs gave roothold to luxuriant overhanging masses of delicate green.

At last we stood on the pass. The view before us was one of which the Hawaiians might well be proud. We were on the pass at the top of a high cliff, with a large and nearly circular valley beneath us. Away to the right and left stretched the lofty walls, curving gradually around as if to inclose the valley on all sides, and draped in rich tropical green, relieved here and there by the red and brown cliffs and towers of rock. Away in the distance the green of the valley-carpet gave place to the blue of the ocean background; the narrow belt of surf dashed to foam over a white coral bottom, forming a line of harmony between the two colors.

While we were at the Paré an incident occurred which illustrates a curious superstition still prevalent among the people. In examining the volcanic rock of which the hills consist, my attention was attracted to what I took to be a waxlike mineral known as palagonite. Detaching it without much trouble, I was surprised at finding a hole behind it, apparently containing more of the same substance. Hoping to increase my supply of a rare mineral from a new locality, I stowed away in my pocket, without a closer examination, the piece I had obtained, and proceeded carefully to dig out the rest with my knife. Much to my astonishment the prize produced from the hole was a half-decayed rag. A closer examination of the supposed mineral, so carefully treasured in my pocket, showed that it belonged decidedly to the animal kingdom. Mr. Carter asked an explanation from some passing natives. They explained that the substance found was the navel cord of some infant, it being an ancient custom, at the birth of a child, for the parents to hide this part of the infant to whom alone the place of concealment is afterward shown. Should an enemy, by any chance, discover the sacred repository, it would be in his power to bring about the death of the unsuspecting owner by sorcery.

The costume introduced by the missionaries, before my visit, was still the dress of the native women. It consisted of long skirts, high waists, immense coal-scuttle bonnets, and, apparently, no underclothing. The effect was laughable, as we met troops of pretty girls mounted astride of ponies, and dressed in the costume of our grandmothers' portraits, chattering and laughing gaily as they cantered along, their bright-colored dresses fluttering in the wind, and scarcely concealing their well-rounded forms.

It was not without much difficulty that the missionaries succeeded in making these children of nature adopt any dress whatever, even for decent attendance at church. Even then, I was told, on some of the islands, the people brought on Sunday all their clothing in a bundle to the door of the church, where they dressed, and after service doffing their costume, carried it homeward under their arms.

After a delightful visit of two days we left Honolulu, and again settled down to the routine of life at sea. Hoping to find more favorable winds, we ran several degrees south till brought to a standstill by a calm. Here, for days, our ship lay apparently motionless, on a perfectly smooth sea, though our observations showed that the great equatorial current was carrying us on our way at a rate of about fifty miles a day.

A large shark hovered around our stern, his companion, a pilot-fish, almost always visible, swimming near the dorsal fin of the monster. A large hook, baited with beef, was thrown overboard. The shark turned on his back and quickly swallowing the bait, turned again and was caught. The home-end of the rope was passed through a block, and soon the great monster was being raised to the quarter-deck. While in this position a violent blow from his tail against the stern of the ship shook the latter through its whole length, showering into the sea nearly our entire stock of bananas, which had been hung over the stern to ripen.

During the calm the smooth surface of the ocean bore myriads of zoophytes, mostly Physalias (Portuguese man-of-war) and Velellæ, with here and there an Ianthina and a Rhysostoma. The Velellæ, a flat, oval disk about an inch long, with an upright membrane like a sail crossing it obliquely, floated leisurely on the surface. Many dead ones were found having small mollusks attached to them, these pirates using their victims at the same time for food and means of locomotion.

The Rhysostoma and Physalias lived for several hours in a bowl of sea water, and both of them, when stirred in the dark, emitted a phosphorescent light. Many were the sharp stings we received from the long arms of the latter, when they chanced to touch the back of the hand or the face.

In violation of all sailing directions our captain now decided to run north and then west to Japan, and with the first favorable wind we steered northwest till the calms of Cancer brought us again to a standstill, excepting the slow westwardly movement due to the current. The next wind permitted at first a northwesterly course, but as it soon brought us into the region of westerly winds our course slanted off to the north, and finally into east of north, and we ran again south into the calms of Cancer. During more than sixty days we were continually repeating this zigzag course, making some progress by casual breezes and the current in the calms, and then running north in the vain hope of finding favorable winds. This was owing to the mismanagement of the captain, for it is an established fact that from the twenty-seventh degree north latitude north the prevailing winds are from the west, while from the twenty-third degree north latitude to the equator they are the trades blowing from the northeast, the two regions being separated by the belt of the calms of Cancer.

At the end of a month we had not made half the distance between Honolulu and Japan. Not long after this it was discovered that the great iron tank on which we relied for water had sprung a leak. As it was surrounded by the cargo it was both impossible to get at the leak to stop it, or to find out how far it was from the bottom. The deck-casks were empty, the water was sinking several inches daily in the tank, and it was impossible to say when we might reach land.

The passengers and crew were immediately put on rations of water, each person receiving about a quart daily.

During the greater part of the remaining distance we were tossed about by almost constant head winds and violent storms. The three new sets of sails with which the ship had begun the voyage were reduced to one set made up of patches, and the loss of the nut from a rudder-bolt threatened to leave us without the means of steering. In addition to this a disagreement between the chronometers left us in doubt as to our exact position, for we had seen no land since leaving the Sandwich Islands, although our course as platted crossed repeatedly the long line of low reefs and rocks stretching thence to the northeast.

On the evening of the 18th of February, the ninety-second day from San Francisco, the cry of "land" brought us all on deck. A cone so regular in shape as to leave no doubt of its being Fuziyama was visible near the setting sun—the first glimpse we had caught of Asia and the Japanese Empire. The day and night were calm, and as we were now within the influence of the Kurosiwo—the gulf stream of the Pacific—we were drifted northward, and in the morning were opposite Cape King. Hundreds of Japanese fishing boats were visible all day, and toward evening a favorable breeze brought us in sight of the volcano Oosima, from which arose a column of vapor.

The next morning found us off the entrance to the Bay of Yeddo. Fuziyama was very distinct, its elegant cone wholly mantled with snow, and rising high into the air above the intervening wooded hills. This beautiful volcano, rising 12,400 feet above the sea, is perhaps the first object associated with Japan in the minds of all who have seen the decorated wares of that country. It was therefore fitting that this only familiar object, like a solitary friend, should welcome us as strangers to a land where all else was new.

The entrance to the Bay of Yeddo does not make itself apparent till one is nearly in it, and, owing to a misunderstanding of the sailing directions, we very nearly ran aground in taking a wrong course which would have brought us ashore in Susaki Bay. When we discovered the mistake the wind was gone, and we passed the day lazily and impatiently watching the glassy surface of the sea for the "cat's-paw" forerunner of a breeze. The arrival of a boat, from which we bought some fish, was a welcome excitement, as our cabin stores were entirely gone, and without the fish we should have been reduced to very bad junk and hard-tack.

During the afternoon I amused myself in examining some of the many kinds of zoophytes with which these waters abound. One of these, a beroe I believe—a small, transparent, bell-shaped animal—was marked with ciliated lines radiating from the top and continuing to the rim. Kept in a bowl of sea-water, and stirred in the dark, this animal emitted a beautiful phosphorescent light along all the ciliated lines, rendering these, and only these, distinct in every detail.

Early the next morning we beat into the Uraga channel, the entrance to the bay. On both sides the shore was formed by high hills, with numerous valleys and ravines. Rich foliage covered the declivities, while small villages or isolated houses occupied the foreground in the valleys, whose terraced sides and bottoms were green with young grain. Fishing boats, and nets of many kinds, lay along the shore, while hundreds of junks were taking advantage of the fair wind to leave the bay. Boats with fishermen were constantly coming off to us and offering fish. In their long dresses, it was impossible for us to distinguish between the men and women. All were anxious to get empty bottles. One of these, corked and thrown astern, would cause an exciting race between a score of boats.

Soon we passed the long tongue of land known as Treaty

Point, and the Bay of Yeddo opened before us so large that, in the northeast, no land was visible. Here Mr. Benson, U. S. Consul, and Mr. Brower, agent of Messrs. Olyphant & Co., came on board and invited Mr. Blake and me to make our stay at their house.

CHAPTER XXII

YOKOHAMA

The scene which met us on landing, and through which we walked to Mr. Brower's house, was no less novel than busy. At the head of the quay we passed a long, low building with black walls and paper windows. This was the custom house, and a large number of men, each bearing two swords and shuffling in sandals in and out at the doors, were the officials of this service. The broad streets, leading through the foreign quarter, were crowded with Japanese porters, bearing merchandise to and from the quay, each pair with their burden between them on a pole, and marking time independently of the others, with a loud, monotonous cry—*Whang hai! Whang hai!*

We immediately reported ourselves by letters to the governor of Kanagawa; and receiving an answer that he would communicate with the Government at Yeddo, we settled down to await orders.

Yokohama was one of the three ports opened to foreign trade. The treaty called for the opening of Kanagawa, a large town on the opposite side of the harbor; but the native Government wishing, in accordance with its policy, to keep foreigners distinct from Japanese, built an island in a shallow harbor, separating it from the mainland by broad canals. On this they erected storehouses and built a quay. With the day appointed for opening the port the foreigners arrived, eager to reap the first fruits of trade, and these earliest comers, finding conveniences prepared for them which did not exist in Kanagawa, readily accepted the position assigned them by the cunning Government. Yokohama was infinitely better adapted to trade that Kanagawa, so far as the harbor facilities are concerned, and was far more easily defended against the attack of the assassinating Ronins. Both reasons undoubtedly entered into the plans of the Government, but other equally important motives influenced it in building this isolated town. In the first place the Yeddo Government could say to the anti-foreign party that no aliens had been allowed a dwelling place on the island of Nippon. By this means the letter of the unrepealed law against admission of "barbarians" was evaded. In the second place, by the isolation of foreigners and all who were permitted to trade with them, it was possible to keep a thorough control over commerce.

Soon after our arrival we started on an excursion to Kamakura to visit the Daibutz, the colossal image of Buddha. The road thither lay across the country intervening between the bays of Yeddo and Wodowara. This region is a plateau with valleys and ravines terraced for cultivation.

Our road, rarely wide enough for two horsemen abreast, lay partly over hills, while during much of the distance it wound along the tops of the narrow partitions by which the irrigating water was confined to the rice fields, and where a misstep of the horse would leave him and his rider floundering in the deep mud.

The highly-cultivated valleys, unmarred by fences, the sober-looking farmhouses and cottages showing well-preserved age, shaded by handsome trees, and surrounded by neat hedges of growing bamboo, all united to form a landscape in which there was nothing harsh, and where the work of man seemed to harmonize with that of Nature.

Our way wound through several villages where the people, especially the children, turned out to see us go by, the latter greeting us with the morning salutation: *Ohaio! Ohaio!*

Several times we passed large temple inclosures with imposing gateways of granite, from which broad stone walks led through groves of magnificent trees to wide flights of stone steps, leading up the hillside to the shrine at the top.

About noon we reached Kamakura, and, leaving our horses at an inn, started on foot to visit the Daibutz. A half-hour's walk along a comparatively broad road, leading under peculiar archways placed at short intervals, brought us to the shore of Wodowara Bay, and near this to our destination. Passing through an inclosing grove of evergreens, we came into a large open space paved with flagstones. In the center of this is the image. It has been described and pictured so much since my visit that I will content myself by telling that it is Buddha in Nirvana. The sculptor has succeeded in impressing upon the cold metal the essence of the promise given by Sakyamuni to his followers, a promise which during more than twenty centuries has been the guiding hope of countless millions of souls. This doctrine is of the final attainment of Nirvana—the state of utter annihilation of external consciousness and of absorption into the Supreme Spirit—after ages of purification by transmigration.

The Buddha of Kamakura is the rendering of a profound religious abstraction.

The statue is hollow, and has in the interior a temple with many small images of the Buddhist pantheon. Some of these without the lotus would, in a Christian church, have passed readily for representations of the Virgin.

Returning to Kamakura we ate luncheon, and then started to visit the great temple grounds. Passing under a large granite gateway and crossing a stone bridge, we entered the grounds by a broad and long flagged walk. At short intervals we crossed paved avenues leading through the open grove of trees which bore the marks of many centuries, and ascending by broad flights of steps to elevated shrines commanding long vistas over the surrounding land. On large terraces, surrounded by carved stone balustrades, are built the great temples which render Kamakura famous. The buildings are raised a few feet from the ground. They are of wood, the immense beams which appear under the widely-projecting roof being richly carved with the heads of dragons and storks. Every end of a timber is capped with copper, its green patina of age harmonizing with the structure and with the trees. Large quantities of this metal are used inside and out. On some of the temples great labor has been expended in very rich and elegant carving of the woodwork, and on some of the terraces we saw several large and graceful bronze vases.

In one part of the grounds, sacredly guarded by an inclosure, there is a black stone, the feminine equivalent of the phallic symbol, said to have fallen from heaven. It is worshiped by barren women.

At the time of our visit the temples were closed, and we were told that they had not been opened for several years. On a subsequent visit I found that a runner gave notice to the priests of the approach of foreigners, in time to close the buildings. This was a recent restriction arising out of the shameful acts of some European visitors.

Leaving Kamakura we ascended a valley bordered by many temple grounds, and commanded by small shrines perched at the tops of long flights of moss-grown steps of stone. Through a deep artificial cut we passed from this valley over the divide, and descended to the fishing village of Kanesawa, on the Bay of Yeddo, whence we reached Yokohama by boat.

Finding the Government was not likely to forward us to our destination for some time to come, I engaged a teacher and began the study of the language. The young Japanese who undertook to teach me this difficult tongue, though naturally bright, had not only no philosophical knowledge of its structure, but he did not know one word in any other language. Indeed, even the official interpreters made the saddest kind of work with the foreign language, having to make constant use of dictionaries. The instruction was obtained through the medium of an English-Chinese dictionary, the teacher taking the place of a Chinese-Japanese pronouncing lexicon. Progress thus made, though slow, was not always sure, and many were the words treasured up which were later found to mean the very opposite of what I had supposed. After having carefully learned to read and write the Katakana alphabet of forty-nine letters, I was quite taken aback on finding that no books were printed in that character, and that there remained to be gone through with before I could hope to read anything beyond love-letters and novelettes the still more difficult Hirakana alphabet, and the endless study of the Chinese characters used in the official language.

In the beginning of March there was to be a festival at the temple of Daishi (great teacher), in honor of the inventor of the Japanese alphabet. Mr. Benson and I, on the day appointed, entered the boat of the Consulate, and, crossing the harbor, followed the shore of the bay to the mouth of a small river. Notwithstanding the high tide, our boatmen had a hard pull up stream, till, throwing off all their clothing, they worked with a will at the long sculls, marking time with the monotonous *"hwang ho! hwang ho!"*

These boatmen, and indeed most of the men of the lower orders, were as a class the best built men I had seen. The muscles of the arm, leg, and back were equally well developed by the varying routine of their labors. The habit of being naked, with the exception of the breech-clout while at work, rendered their skin much darker than that of the middle and upper classes.

After grounding several times we reached the landing nearest the temple. Passing through the village of Kawasaki, we ordered a dinner at one of the many inns, to be ready on our return. After leaving the village our path lay part of the way between beautiful and well-kept hedges of evergreens and narrow avenues of tall trees, and partly through extensive pear orchards.

We soon entered the inclosure of the temple, and were surrounded by the crowd of visitors dressed in gala costume. Fronting us was an imposing building approached by a broad flight of a dozen or more steps leading to a wide veranda, extending entirely around the temple. The massive, overhanging roof, the great size of all the timbers in the structure, and the gloom which seemed to pervade the interior as seen from without, all gave to the place a somber air of mystery. I never approached a Japanese temple without an indescribable sensation, such as I imagine one would have felt in ascending the steps of the *teocalli* of Mexico during a sacrifice.

The woodwork of the temple, outside and in, was richly carved. Over the high portal there was a kind of double gong, over the front of which hung a thick, silken rope, reaching to the veranda. As we watched the motions of the worshipers an officer of some rank arrived, and stepping from his chair washed his hands in the fountain in the middle of the court. Slowly he mounted the steps, and when he gave a snakelike motion to the silken rope the gong emitted a clear but peculiar sound, the reverberations of which were lost in the somber interior. Throwing himself on his knees and face, the worshiper uttered a short prayer before entering the temple.

Here a large number of priests were performing the ritual, while others were engaged in telling fortunes or selling illustrated guides to the temple. The air was loaded with burning incense rising from swinging censers and from countless vases.

The fortune-teller held in his hand a tube containing many sticks like crochet needles, while before him was a case containing one hundred or more drawers. With a few coins we bought the right to try our luck in reading the future. The old man shook the box, and we each pulled out a stick with a number on it, which we found corresponded to a numbered box from which the priest handed us a printed paper. This being in a mixture of Chinese and Japanese, and badly printed at that, was if anything a little harder to read than futurity itself. The result of some hours of study with my teacher over this paper was the finding that it contained a good deal about clouds and water, an old man sitting under a cherry tree—that part was obscure, but the words, *kané* (money) and *kami* (lord) evidently pointed to wealth and promotion, but as I found out later that *kané* also meant metal and crab, and *kami* meant head and paper and other things, I did not consider that the record of my destiny was as yet unraveled.

On the wall of the temple hung a large bronze tablet with the two alphabets, beautifully executed in high relief, in honor of their inventor.

Even here, where there were crowds of visitors, everything was most neat, from the matted floor and waxed and polished veranda and steps of the temple to the smooth flags of the paved court and to the great cluster of dustless bronze-work in its middle. In keeping with all this were the rich silk dresses and fresh faces of pretty girls, and the more sober costumes of men and matrons.

When we reached the inn the landlady showed us to a room, and soon two neatly-dressed girls came in with our dinner of soup, fish, rice, seaweed, eggs, mushrooms, and *beche de mer,* with warm saki or rice wine. If I had previously had any prejudice against Oriental cooking, it vanished with that dinner, and never returned, not even in the heart of China. The two really pretty and graceful girls waited on us as though we had been Japanese officers, even to lighting for us the tiny pipes of fragrant tobacco. I began to think that traveling in Japan was likely to be accompanied with fewer hardships than I had been led to expect. So, unwillingly, we left the gaily-decked village in time to float our boat out with the tide on our way homeward.

YOKOHAMA

I had come straight from one extreme of man and his environment into its opposite—from a land where silent mystery broods over the grandeur of lofty mountains and vast deserts, where the mirage raises hope only to bring despair; from a land where Nature, in a pristine aspect, had gathered together the extremes of culture, the rugged virtues of the primitive savage, and the savage vices of wrecks of civilization. In this medium the soul was exalted by the majesty of Nature, the mind conscious of the hovering specter of death.

Beyond the ocean how great the change! From the semi-tropical desert to the semitropical garden, from the lowest stage of society to a stage of highly-refined culture.

Over these blest islands, over hill and vale, from sea to lofty summits, Nature had draped, and man conserved, a mantle of stately forest. And in this were framed the works of man, fields, gardens, hamlets, castles, grand or humble abodes and solemn temples, all blending into a harmony of form and color.

This close sympathy with Nature was really only the reflection of a spiritual harmony, whose outward expression was loyalty—loyalty to self, to feudal lord, and to ideals. The artist, the craftsman, even the laborer, sought to express beauty in his work and the evidence of his love of doing.

The Japanese Empire forms the chief part of the long barrier chain of islands which, stretching along the eastern coast of Asia, separate the Great ocean from the Great continent. It forms the Asiatic part of the great line of volcanic activities that encircles the Pacific Ocean from Borneo to Kamtchatka and along the American coasts to Cape Horn.

This outlying chain is the easternmost member of an extensive system of parallel ranges, which, reaching from Burmah to the Arctic Ocean, determine nearly all the details in the configuration of eastern Asia in the same manner as the Appalachian system determines the outlines and details of eastern North America. In another work, after giving reasons for uniting most of the mountains of eastern Asia under one system, I have shown the remarkable analogies which exist between them and the Appalachians. I there proposed to unite all the mountains of the northeast and southwest system under one name—the Sinians. This was later adopted by Richthofen in his great work, *China*.

Beginning with Formosa, and extending nearly 1,700 miles to Kamtchatka, all this island barrier belongs now to Japan. The greatest breadth across the middle of Nippon is about 200 miles, and the average width of the empire is less than 100 miles, but its narrowness is compensated for by its length, from the tropic of Cancer to the Arctic circle.

Being of volcanic origin the soil is fertile.

Nearly a month had passed after our arrival in Japan before we heard directly from the Government. Mr. Harris had written to us that they were for some reason opposed to our visiting Yeddo. We found it impossible to account for the delay in assigning to us our duties, the more so that they were, from the time of our departure from America, paying at the rate of a viceroy's salary.

It seems that an unforeseen trouble had arisen in the minds of the authorities concerning the social position we were to occupy. In a country where rank, from the god-Mikado to the lowest tidewater, tapers off in an unbroken perspective of princes and officials on one side, and spies of equal rank on the other, this question had necessarily to be settled before the first interview. Were mining engineers and geologists mechanics, or were they officials? and if so, what position did they hold in the civil or military scale in the United States? In despair the question was finally submitted to Mr. Harris, who very diplomatically and considerately told them that were Commodore Perry (whom they knew) and ourselves at his house, he would treat us with the same consideration that he would the Commodore.

This settled the question, and we received a notification that the future governor of Yesso would come from Yeddo to call upon us. On the appointed day an officer arrived to announce the coming of the Governor, and soon after the loud jingling of the iron staff and rings of the street-warden gave notice of his approach. He came with a large retinue of officers, all of whom, excepting his immediate attendants, remained outside. The Governor Kadzu-ya-Chikungono-kami, and his *Ometzki,*[*] with three or four officers, seated themselves according to rank on one side of the room, with several scribes behind them, while we took seats opposite them, the Governor's interpreter being in the middle.

The Governor hoped we had recovered from the fatigue of our long journey. He had been told that we had met with head winds, and had made a stormy voyage. It was very kind in us to come so far to give the Japanese instruction in mining.

We replied that we had had a very rough voyage of ninety days, but that the interest we had found in everything we saw in his delightful country had quite restored us. We anticipated much pleasure in doing what we could in the field to which the Japanese Government had called us. We felt highly honored by the appointment.

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[*] Every important officer had his double whose duty it was to report independently; at least such I was told at the time was the function of an Ometzki.

Several servants now entered and placed in a row two light and gracefully woven baskets of oranges, and two boxes, each containing about two hundred eggs. After asking us to receive "these trifling presents," and receiving our thanks, the Governor introduced business by inquiring whether, on approaching the coast of Nippon, we had been able to judge by the color of the sea or the taste of the water or of the fish, or by any other means, of the wealth or poverty of Japan in metals. He seemed a little surprised at our negative answer. This was the first of a long series of similar questions I had to answer in interviews with Japanese officials and the Board of Foreign Affairs at Pekin. They showed that these people, who have for thousands of years sought the philosopher's stone and the elixir of life, supposed that the scientists of the West possessed a key to open a royal road through the secrets of Nature.

After informing us that the Government had sent for a steamer to take us to Yesso, the Governor asked whether either of us had visited the mining districts of Europe. When told that I had made them the subject of several years' study he was much interested, and asked many questions concerning the mines and the manner of working them.

Kadzu-ya-Chikungono-kami, with whom we were to have a great deal of intercourse on the island of Yesso, was the type of a Japanese gentleman. He had a handsome face, with a fair complexion, and an exceedingly kind expression, and he had the modest and easy manner which marks the man of social culture in all countries, and especially in Japan.

The next morning the Governor returned, by appointment, to examine the instruments, etc., forming our outfit. During several hours he wandered among theodolites, levels, chronometers, sextants, barometers, etc., asking an explanation of each object, and expressing the wish that he might be able to give time to the study of science. During this interview, as in that of the previous day, every word said was written down by the attendant scribes, while some of the officers amused themselves by sketching the novel display. The same day we received a call from one of the earlier ambassadors to America, accompanied by a former Governor of Yesso. The first spoke much of his visit to the United States, and of the pleasure it had given him.

CHAPTER XXIII

EXCURSIONS

HAVING learned that it would probably be several weeks before we should be sent to Yesso, we determined to see something of the surrounding country, and naturally planned our first excursion so as to include the nearest mountains, the Oyama, on the edge of the treaty limits. Accompanied by Mr. Frank Hall and Mr. Robertson, with our Japanese servants and *bettos* or running footmen, we made an early start from Yokohama.

Crossing the broad marsh by the costly causeway which the Government had built to render Yokohama accessible to Kanagawa, we passed through the latter town and were soon in the country. Our *bettos* led the way on foot, acting as guides, and running at the rate of a four-and-a-half or five-mile trot. These grooms deserve a passing description. They were a luxury permitted only to officers, whose horses they generally led by the bit on all formal occasions; for the Japanese official rode fast only when on important business, or when, in the absence of spectators, a fast trot or canter might be indulged in without loss of dignity. Foreigners had adopted the custom, much to the astonishment of the Japanese, who looked with wonder on a European merchant riding on a saddle and keeping running footmen, both of which luxuries were forbidden to any native not graced with two swords.

As we kept up a brisk trot wherever the road permitted it, our *bettos* gradually relieved themselves of the little clothing they had worn at the outset, and they now appeared in a costume worthy of a New Zealand chief. They were tattooed from head to foot, and there seemed to be as much rivalry among them as to whose back should present the most varied picture as there was in outdoing each other in swiftness of foot. My *betto,* who was one of the fastest runners, was covered with an elaborate representation, in bright red and blue, of a goddess and a dragon, the head of the latter peering forward over the right shoulder, while the body of the monster, extending down the man's muscular back, wound its tail around the left leg and foot.

The country we were traveling through was part of the low table-land extending from the Bay of Yeddo to the Oyama Mountains. For several miles a large part of the surface was occupied by a young forest growth, with fields devoted to rape seed, wheat, buckwheat, etc. Soon we came into the more populous district through small villages, with substantial farm buildings and fireproof storehouses. Through these places we rode at the head of an amused crowd, whose size was limited only by the extent of the population.

Large numbers of mulberry trees now showed that we were entering the silk district of Hachiogi. The country was divided into small fields, by rows of these trees crossing each other at right angles, leaving the squares thus inclosed open for the cultivation of grain. The trees are planted a few yards apart, having the trunks cut off at a height of from one to five feet from the ground. This dwarfing process not only hinders them from shading the adjoining grain, but is said to improve the quality of the leaf.

Occasionally a well-built stone wall, inclosing extensive and wooded grounds, and broken by an imposing gateway, showed that we were passing the home of some man of more than ordinary rank. In building walls the Japanese show a great deal of both taste and skill, although the masonry is confined almost exclusively to substructures, gateways, and tombs. Indeed, the prevalence of earthquakes prohibits the use of either stone or bricks for houses. Where a suitable rock can be obtained, walls are constructed of large and well-dressed blocks, neatly laid together without mortar; but where the country furnishes only rubble or stone of irregular shape, they are used with mortar in such a manner that, while the stones nearly touch each other, the white cement seems to occupy the greater part of the surface.

The fences surrounding the farmhouses were always exceedingly neat; sometimes they were well-kept hedges of living bamboo, but more generally were formed of bamboo and reeds interwoven.

Toward evening we reach Hachiogi, and stopped at the best-looking inn, where we were shown to a large room on the second floor. As foreigners generally insisted on wearing their boots on the delicate Japanese mats, it was difficult for them to gain admission to any house where the proprietor had once had his floors disfigured, and when admitted they usually received the poorest rooms. While we were eating, and till late in the evening, we were surrounded by more people than we could have wished for. As I was about to pass my first night in a Japanese house, I watched anxiously the preparations for sleeping. These were simple enough: a mattress in the form of a very thick quilt, about seven feet long by four wide, was spread on the floor; and over it was laid an ample robe, very long, and heavily padded, and provided with sleeves. Having put on this night-dress, the sleeper covers himself with another quilt, and sleeps, *i.e.,* if he has had some years' practice in the use of the pillow. This was a wooden box about four inches high, eight inches long, and two inches wide at the top. It had a cushion of folded papers on the upper side, to rest the neck on: for the elaborate manner of dressing the hair did not permit the Japanese, especially the women, to press the head on a pillow. Every morning the uppermost paper was taken off from the cushion, exposing a clean surface, without the trouble of washing a pillow-case.

I passed the greater part of the night in learning how to poise my head in this novel manner; and when I finally closed my eyes, it was to awake at the crisis to find the pillow tipped over, and my neck resting on the sharp lower edge of the box. During my stay in the country I learned many of its customs, mastering the use of chop-sticks, and accustoming my palate to raw fresh fish, but the attempt to balance my head on a two-inch pillow I gave up in despair.

Early the following morning we strolled through the town, looking in at many of the shops. There were few articles of luxury, but mostly the objects of necessary consumption, as grain, vegetables, earthenware, and common china and lacquer work. A sign exposed in front of an apothecary's bore in gilded Roman letters "Van Mitter's Medicines," and looked to us much as the characters on the sign of a New York tea-store must appear to a Chinaman.

On our return to the inn a man brought a card covered with eggs of the silkworm. It was about ten inches by fourteen, and contained, according to the owner, 80,000 eggs. The price was one dollar. Our hotel bill for four persons, four horses, and five servants was five and a half dollars. As we rode out of the town the streets filled rapidly with a crowd, which grew larger and larger as we proceeded.

Every cross-street poured in its thousands, until a surging sea of heads filled the street behind us. "*To jin! To jin!* (Chinaman! Chinaman!) greeted us on all sides, till we were almost deafened. If one of us stopped and wheeled round, the effect was laughable. The whole crowd, now as eager to run away as they had been to follow us, turned, and "those behind cried forward, while those before cried back," till we left them tumbling one over the other, all laughing, crying, and yelling at the same time. There was no intention to insult us, as often happened in the fishing villages, where men and children would run after us yelling: *"bacca! bacca!"* (fool! fool!). In both Japan and China the farming population was the best behaved toward foreigners.

After a ride of several miles over a plain which was little cultivated, we descended into a picturesque valley, and soon came to a small temple, which looked, with the beautiful grounds surrounding it, so inviting that we entered. Two buildings, flanking the entrance, contained the usual gatekeepers, colossal images with horrible faces, brandishing weapons and standing on impossible lions. Near the middle of the open space stood a shrine, with a finely-executed gilded bronze stork on a tortoise on one side and on the other a graceful vase of the same metal.

The main building was a Sintu temple. A series of pretty water-color paintings, in which dragons, warriors, and mermaids predominated, hung on the walls. There was one image of an ugly man with a demoniacal face, who we were told by the polite priest was the devil.

A few miles further on the road entered a small village, where, at the inn, the old landlady and several pretty girls came out and asked us to dismount. Such an unusual reception made it evident that no foreigners had visited this place before; so getting down, we removed our shoes and entered the neatly matted rooms. We were received in the same manner that is usual among Japanese: the landlady came first, and, getting on her marrow-bones and touching the floor with her forehead, hoped we were well and had had a pleasant journey. Then came a remarkably handsome girl who, after much bowing and many polite questions, went out for refreshments. First confectionery was brought in (for in Japan this preceded everything else), and after that soup, boiled rice, eggs, sea weed, and stewed clams.

Late in the afternoon we reached the village of Koyasu, built on the hillside at the foot of the Oyama. As in many mountain villages in Japan, the main street went directly up the declivity by a series of narrow steps and terraces. Up this difficult road we urged our horses, apparently without attracting any attention from the inhabitants. To our surprise not a child followed us in the street, and the few people we passed continued their occupations without looking up. This was something so unusual that we were at a loss to understand the reason, till on applying at the first inn we were refused entrance. Then we concluded that the police were at the bottom of the affair. The hostess met us at the door and informed us that her husband being away at Yeddo, and there being absolutely nothing to eat in the house, and no servants, and the house being repaired, it would be impossible to receive us, but we would find better accommodation a little further up the street. So we climbed a hundred steps or more to the next inn. Here the hostess appeared and regretted the impossibility of entertaining us. Her husband had died that day, but there was a much better place, she said, a little higher up.

Although it was raining furiously, and we were already drenched to the skin, we rode perseveringly up stairs. Nearly half a mile of climbing up the slippery stones brought us into the evening, but no nearer to bed. Every inn seemed to have been suddenly visited by an afflicting angel, prostrating the proprietor, till in one place the gates were rudely shut in our faces and we were warned off. To think of riding back ten or fifteen miles in a rainy night was out of the question, so we determined on returning to the house where we had first been turned away, and obtaining quarters by politeness if possible.

Inwardly cursing the *yakoninerie* (as Sir R. Alcock calls it) of the police, we rode our sure-footed horses down the half-mile flight of stairs to the place where we had made our first trial. Here resolutely dismounting, we waited, while Mr. Hall, who spoke the language well, besieged the hostess. By persuasive politeness he carried the point, where force would probably have failed and been followed by serious results. Once in, we were treated well, not only by the hostess but by the landlord also. As we were eating a sharp shock of an earthquake shook the house, which vibrated for some seconds.

Owing to the frequency of these phenomena the houses are necessarily built of wood, which causes all great shocks to be followed by fearful conflagrations and proportionate loss of life. In the grounds of a temple in the western suburb of Yeddo I observed a large monolith which had been turned nearly forty-five degrees on its base, presenting an instance similar to that observed on the obelisks of a Calabrian convent. This last has been cited to prove that there are sometimes gyratory shocks.

In the morning we set out on foot to climb the mountain. The temples near the summit have great celebrity, and are visited by many pilgrims. The stone steps are said to extend to the highest point. After we had climbed about half a mile up the street of stairs through the village an officer joined our party, and seemed disposed to make himself agreeable in answering questions. A little further on we found ten or twelve officials drawn up in a line across the street, near an inn. With a great many bows they pointed to the open door, and pressed us to enter and take some refreshments. Of course we could not refuse; the lion in the path was too strong to be turned by force.

When we had taken our places on the mats, the officers, seating themselves in a semi-circle between us and the door, ordered confectionery and tea, which were produced so quickly that it was evident they had planned the whole thing beforehand. We soon came to business, we asserting our wish to visit the temples and our right to travel twenty-five miles from the port, they "regretting" that their instructions were to consider Koyasu the extreme limit, as it was twenty-five miles by the road. Of course we had to yield, but we effected a compromise by promising to return if they would allow us to visit a neighboring hill to see the view. Reluctantly agreeing to this, they led the way, and we had gone some distance before we found that they were taking us back by another road. However, in the end we got to a point where there was a fine lookout over the plains between Wodawara Bay and the Bay of Yeddo. Expressing ourselves satisfied with this, we turned our steps downhill and entered the main road, where we found that a large canvas curtain with the arms of the Tykoon had been stretched across the street, and a guardhouse erected.

In descending the steps our attention was drawn toward a group of fifteen or more representations of the *phallus*. They were of sandstone, from a few inches to two feet long, and stood erect around a central column containing a cavity either intended to hold a lantern or an incense burner. The *phallus* evidently entered largely into the symbols of the popular religion, if one might judge by the great number of representations of it exposed for sale. It would be interesting to know whether this is a feature of the older religion of Japan, or whether it was introduced from India. I believe there is no trace of it in either China or Tartary, and the fact that it is incorporated into the Sintu ceremonies would seem to show that it existed here before the introduction of Buddhism. The wide geographical range which this symbol occupied in antiquity, in India and in the earlier and later mysteries of Greece, Rome, Samothrace, and Egypt, and as it would seem in Central America, renders its presence in actual use in a country where it coëxists with an ancient religion exceedingly interesting.

ELISE PUMPELLY CABOT

The Yakonins sent a spy after us in the person of a man who pretended he was going to Yokohama on business, but we soon left him behind. In the afternoon we reached a river which could be crossed only on a ferry. A flatboat was there, but the ferryman refused to take us over, and it was not without some difficulty that we succeeded in crossing by ourselves. News of our invasion had gone before, and at the first town we were met by wondering officers and wardens with their jingling staves of iron. To them, however, we did not give a chance to repeat the hospitalities we had received from their colleagues in the morning at Koyasu.

Here we entered the *tokaido,* the great highway which follows the eastern coast from one end of Nippon to the other. There is a network of these thoroughfares, by which the provinces of the coast and mountains are connected among themselves and with each other respectively. They would be necessary, if only as military roads, to accommodate the transit of the army which each prince was then obliged to take with him on his yearly journey to Yeddo. These highways, so important from both a military and commercial point of view, were part of the imperial domain, though they traversed the territories of almost all independent daimios.

As wagons or carts were next to unknown, these roads were intended only for pedestrians and horsemen, and in the rainy season were not always in perfect condition. They were made broad in order that the trains of two princes might conveniently pass each other.

The *tokaido* was lined on either side with villages, the larger of these extending their suburbs in each direction one or two miles. Thus for a great part of the distance the highway presented the appearance of a city street. But at intervals the traveler came into the open country where, as he moved onward on horseback or in a *norimon* (a kind of palanquin), shaded by ancient elms and oaks, he might enjoy the ever-varying scenery, and turn his eyes from lovely hill and dale, woodland and green terraces, on one side, to bold headlands and island-dotted bays on the other. The scenery along the coast of southern and central Japan is as beautiful as it is peculiar. The coast is very bold, and indented with thousands of bays and fiords. The surf is dashed to foam on countless rocks covered with a gorgeous carpeting of bright-colored sea mosses and shells. There are islets worn by time and wave into fantastic shapes, and islands rising with high vertical walls, capped with a dense mass of trees and plants, which overhang the precipice in their luxuriant growth. Here and there a wooded island, rising like a pyramid of verdure, is capped with an ancient temple, made accessible by long flights of stone steps, which, beginning under an archway on one of the infrequent beaches, climb the steep hillside, half-hidden by the overhanging trees. The general absence of beaches, the dark volcanic rock, and rich shades of green, combined in every variety of outline, surrounded by the sapphire blue of a deep sea, and covered by a sky like that which vaults the Mediterranean—these are distinctive features of Japanese marine scenery. In the fury of a typhoon, it is as awful as it is enchanting in a calm. The suwonada or inland sea, which separates Nippon from Kiusiu and Sikoku, is described by all who have passed through it as being beautiful beyond description.

But to return to the *tokaido,* under the shade of whose elms we were trotting. Groups of travelers were strung along the road. Here and there a horseman—a *samurai* if he bore two swords, astride a saddle with a peculiar heavy stirrup of iron, his horse's mane dressed like *chevaux-de-frize* with paper cord, and its tail carefully encased in a bag; or if the rider were a merchant, he was perched cross-legged on a high back-saddle, and carried slowly by a sorry beast. Groups of daimios' retainers and baggage-bearers, separated from the main train, loitered at a roadside booth, drinking tea or *saki,* and scowling at the passing foreigners. As we cantered gently onward we overtook humble travelers, bent up in the basket *cango,* which, slung under a pole, was borne at a trot by two men, who had concluded that it was easier to carry clothing on the *cango* than on their backs.

Soon a rise in the road showed us a larger group slowly ascending the hill before us. From the number of retainers it seemed to belong to a man of high rank, perhaps an inferior daimio. A considerable number of soldiers and men bearing lances, spears, tridents, and other insignia, on long poles, were straggling along the road, escorting a large *norimon,* behind which a caparisoned horse was led by grooms. Richardson had not then been murdered for trying to cut across the train of a prince, so, following the rule of the road, we crossed to the right side, and passed the cortège. Strolling mendicants and begging priests, with bells or rattles, sturdy story-tellers and pretty-faced *bikunins,* or traveling nuns, as they were charitably called, made the *tokaido* their home, and found on it the means of subsistence. I never learned whether the story-tellers had the power of improvising, though I had reason to believe that they had, since I felt more than once that a laugh was raised in the streets at my expense by these popular characters.

Much mention has been made by travelers of the mendicant nuns or *bikunins,* of whom I saw several. They are generally young and pretty, though not always so charming as they have been represented. Kaempfer has described them: "We also met several young *bikunins,* a sort of begging nuns, who accost travelers for their charity, singing songs to divert them, though upon a strange, wild sort of tune. They will stay with travelers as long as they may wish for a small matter. Most of them are daughters of the *yamabushi,* or mountain priests, and are consecrated as sisters of this holy begging order by having their heads shaved. They are neatly and well clad, wearing a black silk hood upon their shaven heads, and a light hat over it to defend their faces from the heat of the sun. Their behavior is to all appearance free, yet modest, neither too bold or loose, nor too dejected and mean. As to their persons, they are as great beauties as one shall see in this country. In short, the whole scene is more like a pretty stage comedy than the begging of indigent poor people. It is true, indeed, their fathers could not send out upon the begging errand persons more fit for it, since they know not only how to come at travelers' purses, but have charms and beauties enough to oblige them to further good services. They are obliged to bring so much a year of what they get by begging to the temple of the sun goddess at Isse, by way of tribute."

During our stay at Yokohama we might undoubtedly have seen far more of the country had we chosen to ask for the right to make excursions in our character of foreigners in the Japanese service—a step we did not wish to take before we should have performed some of our duties. As subjects of a foreign power, we had no right to pass the narrow treaty limits, nor would it have been always safe to do so even under the protection of a Government permit. The relations between foreigners and natives were daily becoming more complicated, and a civil war was threatening to break out at any moment. Foreign ministers, in the general obscurity that hides the whole political and social organization of the empire, not knowing whether our enemies were in the Government of the Taikoon or among the daimios, distrusted both alike. Under the pressure of the anti-foreign party of powerful princes, the Yeddo Government was losing ground, and the Taikoon menaced with disgrace, should he not withdraw at least the greater part of the privileges granted to Western powers.

Though neither the Ministers of foreign nations, nor we, then knew it, there was brewing the revolution which in 1868 resulted in the overthrow of the Shogun, and in the downfall of feudalism at the time of its highest development.

On the ruins of feudalism was to arise an Empire centralized under the Mikado, and with a constitution.

There were two great opposing elements, the Shogun and the daimios, and between them the nominally acknowledged suzerain of both, the Mikado. The power of the Mikado was nominal from the twelfth century till 1868, but even as such it was consequently valuable only as an instrument in the hands of one or the other of the opposing parties. During times of peace, when the national machinery ran smoothly, the Mikado went through the tedious routine of living and dying, toy sovereigns with a toy court; but when some grave question arose, as in later years, he became the object of intrigue, and the most important problem appeared to be who should then control his mandates.

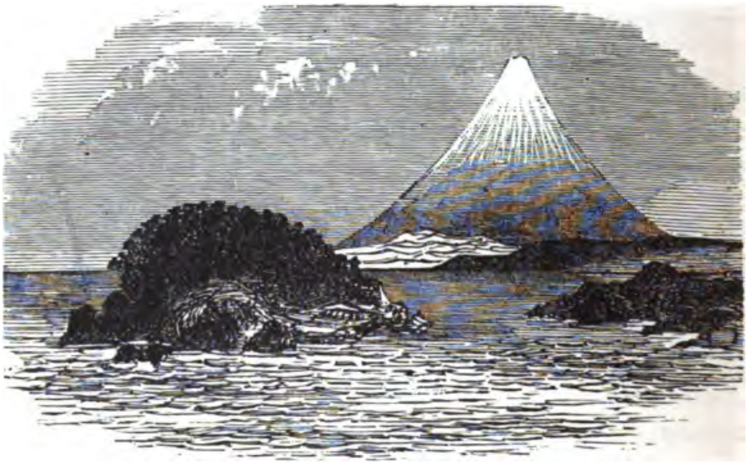
EXCURSIONS

Toward the end of April I joined Mr. C. Maximowitch, a distinguished Russian botanist and explorer, in making an excursion to Inosima, on Wodowara Bay.

It was impossible to ride anywhere in Japan, off from the *tokaido,* without being aware of the difficulties an invading army would meet. Excepting the few great arteries, like the *tokaido,* the roads were mere bridle paths, winding among rice fields, and in wet seasons were deep sloughs of mud.

Soon we came in sight of the smooth water of Wodowara Bay. A mile or more from us, a long, low neck of sand joined the beach to the rocky island of Inosima. Far away over this neck and over the bar beyond rose the graceful cone of Fuziyama. This most perfect of volcanic cones, rising, no matter whence you see it, above the beautiful intervening landscape, is with reason an object of national pride and the subject of innumerable sketches and verses.

A pleasant canter along the firm beach brought us to the sandy neck, and over this, between two lines of surf, to the island. Here we passed under the inevitable temple gateway. This one was of bronze, and its unusual size and workmanship showed that we were entering upon very sacred ground.



FUZIYAMA AND INOSIMA
From a Japanese sketch

The island is about two hundred feet high, and perhaps a quarter of a mile or more long, three of its sides being precipices. From the sacred portal we ascended the steep street between a double row of inns, at one of which we left the horses, and continued the excursion on foot. The street on either side was lined with temples filled with pilgrims, booths of shell dealers, small tea-houses, and fragments of overturned gateways—records of earthquakes.

The island is cleft by a great chasm, which is now partially refilled with detritus. But the celebrity of the place arises from a long, tunnel-like cave, passing at the level of the sea nearly through the island, and excavated by the waves along a system of cracks in the sandstone. The cavern is about five hundred feet long, but the waves rush into it through a long, deep chasm, a continuation of the cave without the roof. Here is the home of the sea god, of whom there are many images in the dark recess. Truly a more appropriate place could scarcely be found for his abode than this, where the surges of a stormy sea must enter with awful force and reverberating thunder.

During my absence a vessel had arrived, bringing Mr. Pruyn, the successor to Mr. Harris, and the consuls for Yokohama and Hakodade. As this ship was going to Yesso, we proposed to the Government to send us by it, and they immediately despatched a Governor of Foreign Affairs to Yokohama to give us our instructions.

After our business was transacted I asked the Governor what objection there could be to our seeing Yeddo, and was not a little astonished when he replied that there was not the slightest objection. He expressed surprise that we had not already visited the capital, and informed us that, should we wish to go thither the following morning, he would give orders to the Governor of Kanagawa to provide us with an escort. We accepted the offer, although it would allow us only one day at Yeddo, including the journey.

Very early the next morning, accompanied by six officers and eight *bettos* or running footmen, we set out for the capital. With the exception of a few short interruptions, the road between Kanagawa and Yeddo is lined on both sides with houses, forming under different names one long, narrow village. A short distance beyond Kanagawa we passed the place where, a few months later, Richardson was killed.

Our escort conducted us to the American legation, where we were hospitably received by Mr. Harris, from whom we learned, much to our disappointement, that we had visited Yeddo upon the one day in all the year when it would be impossible for us either to cross the city or approach the castle, since on that day the Taikoon would visit a favorite palace, and the Government had requested that no foreigners should enter the heart of the capital. I felt this disappointment less than I should have had I foreseen that I was to leave Japan without revisiting its metropolis.

The legation occupied the large reception rooms of a temple built for the use of those daimios whose ancestral tablets were here preserved.

From Mr. Harris we learned that the object of the Japanese Government in engaging us had been to introduce modern methods in some great gold and copper mines already producing on Nippon. In the meantime, however, internal political troubles had made it necessary to abandon that plan. They were sending us to the Government of Yesso to fulfil their contract and, incidentally, to have us examine the mines there and give instruction to some men who were to go with us.

For the protection of the Minister the grounds were surrounded by a double stockade of bamboos. Between these walls a strong patrol was constantly on duty, and from 150 to 200 soldiers, furnished by the Taikoon and a daimio, were always on guard. Piles of combustible material were scattered through the grounds, by which, in case of an attack, a brilliant light could be produced. In the midst of dangers requiring precautions of this kind did Mr. Harris live in Yeddo, after the withdrawal of the other Ministers, himself and his interpreter, Mr. Portman, being the only Europeans in the great city.

It was the persistent diplomacy of Mr. Harris that succeeded in getting the ratification of the treaty that opened Japan to Americans and opened the way for treaties with European powers.

The grounds of the temple were large, and contained some beautiful specimens of Japanese gardening, consisting of dwarfed trees and rock work, with ponds containing gold fish and silver fish. Several of these were more than two feet long, while some of the smaller ones proudly steered their way by means of lobed tails that seemed longer than their bodies, and apparently as delicate as lace.

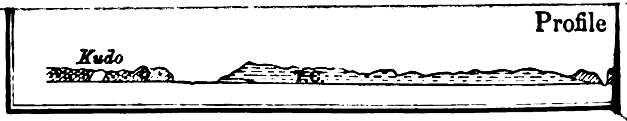
The excursion we made at the suggestion of Mr. Harris, while it showed us only a small part of Yeddo, led us through the daimio quarter. One feature that struck me was the abundance of large trees, many of them perhaps primeval forest pines, which met the eye at every turn, crowning the low hills or rising from the grounds of a daimio's *yaski*. The inclosures were very large, and one might ride miles between the low, black barracks that surround them. Of the space inclosed, only a casual glimpse was vouchsafed by an open gateway. In these inclosures many small standing armies were scattered through Yeddo, and it was said that military drill and artillery practice were here kept up as regularly as among Western armies.

Although I was nearly all the day in the saddle, I saw but little of Yeddo, excepting the streets leading through the daimio quarter and the western suburbs. Here we rode for miles through what was half-town, half-country. The houses were all neat villas, standing some distance from the road. They were protected, but not hidden, by hedges of living bamboos and other plants, while the grounds inclosed were shaded by carefully cultivated trees, and ornamented with the choice flowering shrubs of the country.

As we turned our steps homeward, and reëntered the long suburb on the road to Kanagawa, the escort pressed upon us the necessity of keeping together, as the drinking houses of this quarter were always full of the drunken retainers, who are a constant source of terror to the peaceable inhabitants.

A somewhat startling illustration of the habits of this class offered itself more suddenly than was agreeable. A party of eight or ten dashed into the street just ahead of us, flourishing their drawn swords and acting like devils. Fortunately they were either too drunk or too much bent on cutting each other to notice us.

It was late at night when we reached Yokohama. We had gone fifty-four miles since the morning; and we had been to Yeddo, and had ridden sixteen miles in the city. We had probably seen less of its interesting points than any other travelers before or since. One only out of all our running footmen returned with us, having kept ahead of his horse during the entire journey.


Profile
Kudo

CHAPTER XXIV

FIRST JOURNEY IN YESSO

Bidding good-by to Messrs. Brower and Benson, and to Dr. Simmons, to whose kindness I owed much of the pleasure of my visit, we sailed on the *Ringleader* for Yesso, and entered the harbor of Hakodade after a short and pleasant voyage. This town, the northernmost of the then open ports, is built on the footslope of a rugged peak, which, rising 1,150 feet, overlooks the straits of Tsungara, and commands a view of the hills of Nippon. This island-like peak is connected with Yesso by a low sandy neck, thus forming a harbor several miles broad, and accessible for the largest vessels.

Pending the building of a house suitable for our dwelling, quarters were assigned us at the custom-house.

Although our house was built in Japanese fashion, I wanted a door that could be locked, so I called in a metal worker to make hinges. No screws could be had. The man asked what they were, so I showed him an iron screw from one of my boxes. He took it away and the next day brought a dozen brass screws beautifully made and polished. He had imbedded a round stick of wood in a cylindrical mass of molding sand and then in twelve places on the sides, screwed my screw in as far as the wood. Then he had incased the whole in molding sand and had taken out the screws, withdrawn the stick, and poured in the brass. He had made several such molds, and showed me a core with the rough screws attached.

He also asked permission to copy my Colt's revolver. Before long he brought an exact duplicate working well in all its parts, and it was more highly finished. That man could do anything in the way of metal work. And he taught me the secrets of the Japanese alloys and ways of coloring them.

This is peculiar to Japan. It does not consist in adding something to the surface, but in removing something from the combined metals to produce a color peculiar to each alloy. Thus to make the dark steel-blue *Shak'do* which is nine-tenths copper and one-tenth gold, the finished object is boiled in a solution that apparently removes a part of the copper leaving the rich dark color due in some manner to the residual gold in the surface. The beautiful *gin-shi-bu-ichi*—four parts copper and one of silver—after boiling in the same solution, comes out a velvety gray due to the removal of some copper.

When I left Japan this metal worker's parting gift was a collection of all the alloys and their solders.

The Japanese carpenter also became a good friend. His parting gift was two planks of choice *Kiyaki* or Japanese elm. They were 100 years old then, and I have them still.

I had for servants a soldier and his wife. The woman cooked and kept the house, the man did everything else. I gradually intrusted to him the keeping of accounts and the key of my safe. He was a quick calculator with the *abacus*, and skilful with the pencil or brush. If I wanted parsnips, for instance, and only knew the word for root, he would with a few quick strokes of the brush draw a beet with its leaves, then a turnip, or a *daigo*, a yam, etc., till he came to a parsnip. All done rapidly and botanically correct.

This intimate acquaintance with everything around them, and the ability to sketch, was a part of the general education.

Since, owing to the newly arisen political troubles, the Government was not able to send us to the rich gold and copper districts on Nippon, it turned us loose to explore the island of Yesso. It was necessary to first make a general tour of observation through those lands. Accordingly, on the

23d of May, we set out on our first official journey. The Government had attached to us a staff of five officers, who were at the same time assistants, escorts, and pupils. Two of these, Takeda and Oosima, were chosen as having distinguished themselves in the study and application of European science; two others, Tachi and Yuwao, were officers of the mining department of the revenue office; the fifth, Miagawa, accompanied us in the capacity of both interpreter and student. Besides these, an *ometzki* was sent.

With our servants we made a train of eleven horsemen as we rode through the long paved street of Hakodade.

Crossing by the sand neck to the main island, we cantered over the firm beach to Arikawa, passing through straggling hamlets of fishermen where oil was being made from tons of reeking herrings, and threaded our way among a labyrinth of drying nets, and under myriads of noisy ravens and crows. These birds enjoy absolute security in all Japan. Welcome as scavengers, they are little feared by the farmer who by a simple contrivance frightens them from the crops of his small fields.

Leaving the beach we ascended to Ari, a small river, to the village of Ono, on a broad, swampy plain, one of the few places on Yesso where agriculture was followed.

From Ono we sent back our own horses, and the next morning began our experience with the vicious brutes of the country, which, being unaccustomed to foreigners, did all they could to throw us. The Japanese horses were small and strong, but badly built, and were evidently the degenerate offspring of the Tartar stock. As they were always stallions, their worst qualities were generally the most apparent. There was an improved breed on Nippon, which supplied really superior animals for the daimios and high officers. The frame of the Japanese saddle was very similar to that used by the Chinese, and, like that, was derived from the Tartars, who, if we except the English variety, seem to have furnished the model for saddletrees to all the world.

After a short ride through a wooded valley we reached the lead mines of Ichinowatari, lying at the entrance to a rocky ravine containing a wild mountain torrent. The ore carried lead, zinc, and copper. In all Japanese mines the absence of pumping machinery prevented mining to any considerable depth below the level of the adit. The galleries were tolerably well timbered, though low and narrow. Owing to ignorance of blasting, their means of attacking the rock were—till powder was introduced by me—confined to pointed instruments: a miner's pick with one point, a hammer, and a gad with handle, completing the outfit. The ore was roughly assorted by hand, and then passed under dry stamps.

I was not a little surprised to find, in the mountains of Japan, stamps constructed on the same principle as those of Cornwall and Germany, though far inferior in efficiency. They were worked by an overshot waterwheel, turning a cam shaft. The stamped ore was concentrated in wooden pans, generally by women, to a very pure slime. The furnace in which the ore was smelted was a cavity in the ground, lined with a mixture of charcoal and clay, and forming a crucible, about fourteen inches broad by ten inches deep, with underdrains. In front there was an earthen shield to reflect the force of the blast, which entered through a clay nozzle from a box bellows. The smoke and fumes of lead and sulphur passed off through a chimney.

In smelting, the crucible was filled with burning charcoal, and on this was thrown the ore to the amount of eighty pounds. When this was about half melted, twenty-five or thirty pounds of pig iron was added in small pieces, to combine with the sulphur of the galena, and when this was partially effected the whole was stirred. After about two hours the blast was stopped, the coals were withdrawn, and water was thrown on the bath to cool the first layer of matte. This was repeated six or seven times, till the surface of the lead was free, when the metal was cast into bars, the matte being thrown away. In this operation we have the simplest form of the "precipitation" process, the *Niederschlag Arbeit* of the Germans.

These mines were very poor, their greatest production having been in 1860, when during a few months it averaged 600 pounds of lead daily. At the time of my visit it was about eighty pounds. As a curiosity I give below a schedule of the daily expenses at these mines:

Thirty miners, averaging 6 cents each	$1.80
Thirty coolies, at 8 cents each	2.40
Seven overseers, at 5 cents each	.35
One carpenter	.08
Twenty-six ore-dressers, averaging 3 cents each	.78
Two men at the stamps, at 4 cents each	.08
One smelter	.08
Two smelter assistants, at 4 cents each	.08
Two hundred pounds of charcoal	.17
Thirty pounds of inferior pig iron	.16
	$5.98

The vein was so small that even considering the cheapness of labor it seemed doubtful to advise much outlay in improvement. Some simple changes in the stamps, concentrating method, and furnace could increase efficiency. By the use of powder the rapidity of opening and mining could be greatly increased.

However, being now on a general reconnaissance, we could only make notes for future use.

Rations of rice and *miso*, a substance used for soup, were supplied to the workmen. Low as were these wages, they were higher than in the mining districts of Nippon.

Leaving the mines, we returned to the main road and ascended the water-shed of the peninsula which divides Volcano Bay from the straits of Tsungara. Before us rose the volcano of Komangadake, with a beautiful lake nestling in the wood and meadow at the foot of the long slope of its cone. A courier always preceded us by two or three days, bearing a requisition for horses, and notifying the inns at which we were to stay to receive no other guests. On the journey a messenger was sent out every evening to give additional notice.

As this was our first official journey, the Government had ordered that we should receive the same honors in passing through towns that were shown to the Governor on his annual trip. Thus we were met by the wardens of villages at the town limits, sometimes two or three miles distant from the houses. These men, coming on foot, went down on their knees as the train approached, and then, after touching the ground with their foreheads, jumped up and led the way to the inn. Independent of the fact that a European must feel more disgusted than honored by having a man kneel before him in the dust and mud, these men were a great nuisance, as Japanese ideas of dignity required us to follow them at a walking pace.

Japanese despotism had trained the people very thoroughly in the art of falling instantaneously on their knees. It was astonishing to see the effect of the magic word *sh'taniro!* (kneel) upon a dense crowd when a person of high rank was passing. As if by enchantment every gaping, laughing, and chattering native was prostrated, and a deep silence reigned, broken only by the jingling rings on the warden's iron staff, and the solemnly-repeated warning, *sh'taniro! sh'taniro!*

In most of the villages we found small heaps of white sand scattered along the streets, which we were told was intended as an honor for us.

We found out that in these prostrations the people were mistaken as to the persons to be honored. My colleague Blake, instead of having a Japanese manservant, had taken a negro named Trusty who had been a cabin boy on the steamer that brought us to Hakodade. He was the first of his color ever seen on Yesso. In our cavalcade Trusty rode at the rear, and we noticed that the kneeling people waited till the negro came up before knocking their heads to the ground.

In the morning we set out to go to the volcano Komangadake (also called Sawaradake). As we were obliged to pass through the intervening forest, a party of coolies went before us with axes to clear a route through the undergrowth of cane. For several miles we were in a dense wood in which the predominating trees were noble specimens of magnolia, beech, birch, maple, and oak, with large vines of grape and ivy twisted around their trunks and hanging from the boughs.

We reached the edge of the crater at a point below the highest peak, 3,779 feet above the sea. A few years before our visit there had occurred a severe earthquake and an eruption of hot water and pumice, causing loss of life at a distance of several miles. The ashes were carried, by the higher air currents hundreds of miles to the Kurile Islands. The crater was several hundred feet deep, with steep walls, and entirely open toward the sea on the east side—its bottom formed by a broad plain sloping down through the opening to the seashore.

This plain was traversed in all directions by great cracks, distinguishable, from the summit, by rows of steam jets issuing from between their raised red-and-yellow edges.

The view from Komangadake is striking. On our left the shore of the beautiful Volcano Bay forms a long and sweeping curve, while parallel to this the mountains in the background, covered with dense forests, appear in all the shades of green, blue, and purple as they stretch away toward the distant horizon. Far away over the bay, rising as it were from the sea, are several symmetrical cones, long extinct, while nearer, though seemingly among them, rise ruins of the semiactive volcano Oussu, its sulphur-coated cliffs glistening, even at this distance, in the sunlight.

As we approached the long cracks that marked the surface of the plain, the ground trembled and answered with a hollow sound our footsteps. The crevices, often open, were in places closed over at the top by a deceitful arch of sulphur and drifted sand. Breaking through these arches we exposed gorgeous cavities lined with yellow masses of sulphur crystals almost too delicate to bear the shock of a breath.

The appearances were that this mountain had been a ruined cone, which was rebuilt by an eruption of pumice, to be again broken down, and its skeleton of rhyolite given over to the mighty leveling force of solfatara gases.

As we were cantering homeward through the woods, in single file, an incident occurred which might have caused the death of one of the party. As I was riding at a brisk gallop, a short distance in advance of the others, I saw, too late to avoid it, a grapevine hanging like a swing forty or more feet long, and its lower end just high enough from the ground to strike my stomach. To cry out a warning to those behind, and give the swing a push into the air, was the work of an instant, but it was too late; the returning vine embraced Takeda, and, as I looked back, his horse had gone from under him, while he was whirled in a somersault around the loop preparatory to a tremendous flap on the ground. His swords had fallen from the scabbards, and he narrowly escaped being transfixed by one of them, which stood point up, its hilt buried in the moss.

The road from Skunope to Volcano Bay led us through a dense forest of magnificent trees, and along the banks of a small lake whose surface was covered with water plants, and its edges hidden under drooping foliage. At last we came to the shore of Volcano Bay, a beautiful arm of the ocean with volcanoes on its circumference.

Near the foot of the mountain slope we reached the hot sulphur springs of Shkabe. There were several of them rising on the beach, and in a small rivulet. They were housed over, and visited by many invalids, who parboiled themselves in water at 167° F. No people are fonder of hot springs, both for pleasure and as remedial agents, than are the Japanese, and nowhere are such springs more abundant than in this group of volcanic islands.

Beyond Shkabe we left the semicircular plain which surrounds the volcano, and our route now lay along the shore, the gentle surf playing around the feet of our horses, while on our right hand arose the green hills of the peninsula.

Leaving the seashore we ascended Kakumi creek to the Kakumi mines. The day of our arrival was the festival of children. Before the dwelling of the officer in charge of the mines a dragon and fish made of paper were flying at the top of a long pole, and the presents to the baby son of the house were displayed in the entry. They consisted of toys in imitation of the various insignia of military rank.

Neither of these mines was being worked. The first, a gold mine, gave little promise, even with the cheap labor of the country; and we began a long walk up the creek to the other, which had been opened on a copper vein. There was no road, and rarely a path, much of our way lying in the bed of the stream or through a dense underbrush dripping with the night's rain. This vein, which had been explored by an adit, contained copper pyrites to an extent which would not justify work in a country where labor and materials are dear but which rendered a profit possible in Yesso. Being surprised by a heavy shower on our way back, I was not a little amused at the readiness with which the

Japanese improvised umbrellas by covering themselves with immense leaves of a large plant resembling the dock, growing to the height of nine or ten feet, with leaves several feet in diameter. On this occasion, and subsequently, I found in them an excellent substitute for both umbrella and raincoat. In my time the Japanese carried raincoats of strong oiled paper or silk, which were light and tolerably durable as well as cheap, qualities which were also combined in their paper umbrellas.

From Kakumi we returned to the bay, and, riding eastward to Wosatsube, embarked in a boat, the precipitous character of the shore rendering it impossible to continue by land, even on foot. Here a low point of fantastically curved beds of hornstone breaks the surf. Our boat was worked by sixteen oars and sculls, and the strong arms of the boatmen made it fly over the water, keeping time in its vibrations to the song of the naked sailors.

Added to the charm of novelty, this water journey had that of the wildly picturesque coast scenery. The boat kept as close as possible to the shore, in its shade indeed. Far down in the clear waters we could see great rocks surrounded by darkness, and covered with kelp, its leaves fifty feet or more long, almost motionless in the deep. Every now and then a trough of the rolling swell would lay bare, in the whirling waters, some rock taller than the rest, carpeted with a dense mass of sea moss, shells, and sea anemones, brilliant with colors, showing their beauty for a minute to the daylight, to be reburied in a whirlpool of returning waves. Cliffs hundreds of feet high, of brown columnar lava, rise from the deep; caverns resound the thunder of the breakers. Great patches of red and black showed, half-hidden by the green masses of moss, vines, and flowers that find roothold even on the face of the precipice. Add to these the many waterfalls leaping from the woods above to the sea below, a clear blue sky, and the graceful column of vapor rising from the distant volcano, and you have a faint outline of the scenes through which our wild and naked sailors made us skim over the waves.

We landed in a little bight at the fishing hamlet of Totohoke, and the next morning began, on horseback, the ascent of the volcano of Esan, a very active solfatara lying at the eastern point of the peninsula. As the mountain is barely 2,000 feet high, and the entrance to the crater much lower, we soon reached the Government sulphur works.

Although Esan must once have been a volcano of large size, and the source of the great deposits which for many miles form the sea margin, it was now a volcano in ruins, in which the destructive agencies were still working on a grand scale.

The walls of the crater are rapidly disintegrating and falling, to be converted into clay, impregnated with sulphur, alum, and other salts. Nowhere had I seen so well exhibited the leveling power of Nature when she brings into steady action her more active agents. Steam surrounded us on all sides, issuing in jets from the walls of the crater and rising slowly out of the talus of débris, as the smoke rises slowly and silently from the ruins of a mighty conflagration.

Leaving this scene of destruction, we descended to Nietanai, on the shore of the straits of Tsungara.

At Kobi, as at many points on the coast, large quantities of magnetic-iron sand are concentrated on the beach by the surf, and a bed of the same material, much oxidized, crops out in the bluff deposits, which are themselves raised beaches.

Here Takeda asked me to go and see a furnace he had built to make iron. He wanted to know why it didn't work. We rode along the beach till there rose before my startled eyes a blast furnace thirty feet or more high. In its lines and finish it was the work of an artist. Answering my question, Takeda showed me the small picture of a furnace in a Dutch edition of Stockhardt's Chemistry. The picture was accompanied by practically no details for construction and use. The book stated that air was blown into the furnace. So Takeda made a wooden cylinder bellows, worked by two or three men, instead of a blast run by steam power, which had not been described in the elementary textbook. Still the iron had been reduced and smelted, but it had preferred to stay in the furnace instead of flowing out when tapped, hence Takeda's despair. I found that he had been trying to do the impossible, for the ore he used was the highly titaniferous iron sand from the neighboring shore. With an ordinary ore he would really have got pig-iron out of that furnace. And I do not doubt that his energy and quick intelligence would have led him, without outside instruction, to get a better method of making a powerful blast.

I showed Takeda on the spot how with such a furnace lined with fire-brick, and with a larger blast worked by waterpower, he could make a fair yield from proper ores.

Oosima also had built a furnace for his daimio on Nippon, and, having favorable ore, had succeeded, after repeated experiments, in producing pig-iron.

Takeda had studied mathematics, having got a copy of "Bowditch's Navigator," and using a Dutch-English and a Dutch-Japanese dictionary. He had made and published his full translation of the book. He could calculate longitude from an eclipse or from an occultation as easily as from an altitude or from lunar distances. This was of course mechanical, for "Bowditch" was intended for skippers having only an elementary knowledge of mathematics.

The character of these men appeared to me, suddenly, as prophetic. I had no doubt of the future of Japan.

Takeda was a man of lovable character and a fine type of the *Samurai*. There comes to my memory a remark he once made that was both striking and characteristic. It was soon after my arrival at Hakodade. I had been riding through the town, and been followed by coolies shouting: *"bacca! bacca!"* (fool! fool!) and pelting me with mud. I had lost my temper and had chased one of the men till he hid in a house. I asked Takeda what one should do in such a case. "There are only two courses open to a *Samurai,*" he said; "either pay no attention, or—draw the sword and *kill.* To do otherwise would be to lower yourself to their level."

To this lesson in the control of temper, which I took to heart, I owe the fact that I was able to come scatheless later through mobs in China.

Another time, as we sat talking and had each put the little pellet of fragrant Japanese tobacco in our small pipes, I handed him my burning-glass to light with. He drew back, and when I asked why he refused, he said: "Because if I should draw heat from the sun I should have to pay in some way." He apparently did not reflect that the heat was coming, whether he used it or not.

We were now detained more than two months at Hakodade by the prevalence of measles over all the island, and in the families of the officers attached to us. During this time we gave regular instruction to our assistants in the branches bearing on mining and metallurgy, an occupation which, at the same time, gave me some insight into the intellectual capacity of the class represented by these men. The difficulties to be overcome were very great, as we were teaching subjects of which but few of the technical terms had Japanese equivalents, to students who were ignorant of the elementary branches which necessarily precede the study of applied sciences. But they showed anxiety to learn, as well as rapid comprehension. It had, however, to be very elementary. I used a collection of the common minerals and rocks gathered on the excursions for teaching how to recognize them. The outlines of geology I taught verbally and by sketched illustrations and observation in the field. So also the methods of mining. I taught the use of the surveying instruments in the field as far as was possible in their ignorance of trigonometry.

Miagawa had soon become a good interpreter, and his quick intelligence made the task more easy.

Blake was to teach elementary chemistry, but, as the promised room was not provided, I don't know what he was able to do.

Our interviews with the Governor and his council took place alternately at his palace and in our own quarters. At the palace they were always accompanied with tea and refreshments, and often with a Japanese dinner, while the short pipe of the country was in constant use. This was quite an important weapon in diplomacy, and a Japanese Minister or Governor never failed, when pressed with a question, to gain time for reflection in filling and lighting a pipe of their fragrant tobacco. As official interviews occurred very frequently between the authorities and foreign representatives, the former had gradually formed a strong liking for European cooking, and, in order not to appear ill at ease in the use of Western table furniture, the Governor and his council had, at times, dinners prepared in European style, to practise the use of knives, forks, spoons, and glasses, and in giving toasts. They were very fond of champagne.

The Governor and all the high officers about him were men whose dignified bearing and refinement and suavity of manner would grace any Western society. And I remember that, as a rule, they showed consideration towards inferiors and servants, never exhibiting the passionate outbursts so common among Chinese officials—a difference perhaps arising from the consciousness of power with the Japanese. The governors never lost self-possession in presence of the sometimes excited and rude language of some Western representatives. On one occasion, in answer to my question whether this self-possession were inborn or the result of education, the Governor replied that it was made one of the most important features of training, from the earliest childhood through life. Indeed, so delicate was the sense of personal honor in the official class that the wounded feelings of an equal might easily cause him to retaliate by *hara-kiru,* thereby forcing the offender to perform the same operation. The necessity for self-control thus rested on a basis no less strong than the love of life.

Formerly, in committing *hara-kiru,* the suicide actually ripped open his bowels. In my time he simply scratched the abdomen, drawing blood, while an attendant, dressed in white, gave the deathblow with a sword.

CHAPTER XXV

SECOND JOURNEY IN YESSO—THE WEST COAST

Toward the end of July the measles were so far on the decline throughout the island that we prepared a more extended journey of reconnaissance. On the 5th of August we left Hakodade for the west coast.

On this trip in a marsh near the large fishing village of Yamukshinai we found numerous tepid springs which bring to the surface a mineral oil of the consistency of tar. Several priests were using this product for light, and in the manufacture of India ink. These old men received us hospitably, and listened with incredulous wonder to our stories of artesian borings and flowing wells of petroleum.

Before reaching Yurup we passed through a settlement of the remarkable aboriginal race of Ainos, which was shrinking steadily in numbers before the superior civilization of their rulers. Although those whom we saw had been long in close contact with the Japanese, we were told that they did not differ much from those in the interior. They were of medium stature, and strong and compactly built. The face was broad, the forehead rather low, the nose short, and oftener slightly concave, in profile, than straight. Their eyes differ decidedly in shape from the Mongolian type, and are black. Their color was perhaps a little darker than that of the Japanese; the smallest children were white.

But the most remarkable characteristic of this people, in which they differ from all other races of eastern Asia, is the luxuriant growth of their hair, which is straight, long, and glossy. The men have heavy beards of great length, and mustaches of such dimensions that they form a curtain which has to be raised to gain access to the mouth in eating. The whole body is more hairy than in other races.

A book on Anthropology has a portrait of Tolstoi alongside of one of an Aino. The traits of the two individuals are nearly identical.

The women are short, tattoo their chins, and wear long earrings. The Japanese look upon the Ainos with contempt. But notwithstanding the degraded position which they are now able to assign to this people, the Ainos were able during more than a thousand years to maintain a vigorous defensive warfare. It is probable that they were the aborigines of Nippon; indeed, as late as the seventh century they occupied a considerable portion of that island. And it was not until about the twelfth century that they were brought into complete subjection by Yoshitzune. At present they are a mild, good-natured race, and the early European navigators found no terms too strong in praising their simple habits and virtues.

As we passed through the village we met several men who saluted us in the Aino manner, by lowering their hands gracefully from their mouths in stroking their long beards. The houses or huts were built of poles, covered with brush or rushes. They were rectangular on the ground, and curved at the sides and ends upward to the ridge pole; each hut was fenced about with reeds. Near each of them was a small building raised about eight feet from the ground on posts, and serving as a storehouse for fish, sea weed, and so forth. Before many of the dwellings I observed the skulls of bears, raised on long poles. Reverence for this animal has not prevented the Ainos from becoming very skilful in the art of trapping. Sticks cut so that long tassels of shavings hang from the sides are also connected in some way with their superstitions. They are called *inas*, and are found raised on poles alongside of the skulls of bears, and stuck into the earth near graves.

The characteristics of the Ainos were formerly little known, but they are now assigned to the Caucasian race. It is not improbable that they represent a portion of the anti-Mongolian population of eastern continental Asia, of whom the easternmost islands have become the last foothold, just as the least accessible portions of the Indian archipelago, the mountains of China and Thibet, and the frozen regions of the Northeast contain the varied remnants of peoples who have no longer place in either history or tradition.

At last we reached the dwelling of the officer who had charge of the gold placer of Kunnui. The hospitality of this gentleman was very acceptably shown in the form of a salmon over two feet long, which had just been speared in the Toshibetz. The next day in a canoe we started on the river for the gold washings. Two Ainos, a man and a bright-eyed boy, poled us skilfully against the strong current of the mountain torrent. Looking into the river I suddenly saw something brilliant flash through the water and saw, too, a spear pierce it. It was a superb salmon of the kind that has eggs as large as peas which are eaten raw in *Soy*. The stream flowed through a superb forest of maple, beech, birch, oak, magnolia, elm, and wild mulberry trees of large size and thrifty growth. But these beautiful woods, like all the forests of Yesso, are rendered almost impenetrable by the dense growth of a kind of bamboo, which rises from eight to twelve feet, and is so compact that it is impossible to see more than two or three feet into it.

The gold is found in a deposit of sand and gravel which at one time has formed a broad plain occupying the whole valley of the Toshibetz, but in which the river and its tributary creeks have cut their channels to the underlying rock. Geologically the deposit is very recent, overlying in places beds of sandy clay, which abound in shells of living species, in which some organic matter and ligaments are also still preserved. The concentrated sand of the washing is chiefly magnetic iron and zircon. The manner of working is by an ingenious method of sluicing in which the bed of the stream is the sluice, and gold is caught on mats held down by the feet of the men who hoe the gravel from the banks onto the mats. As the stream widens the men pile the cobbles in the middle of the creek.

The returns from these washings are very small, and even with the cheap cost of labor barely pay more than expenses. This, however, is probably owing to the fact that this whole region had been very thoroughly washed over in ancient times, though when and by whom does not appear to be known. Broad and deep canals of considerable length are still visible in the dense forest, and we found every indication that an extensive and well-arranged system of ditch-digging had once existed through the region. All these workings are covered with a heavy growth of trees, apparently not differing from the surrounding forest, either in kind or size. Trunks eighteen inches in diameter were found growing in the bottom of the now dry canals. The same method of washing the sand and disposing of the rubble as that described above appears to have been used by these old miners. We decided that Mr. Blake should return and instruct one of our offices in American methods of collecting gold.

On our return to the house we found each member of our large train rejoicing in the possession of a long string of fine speckled trout. Among these were some fish which resembled closely the catfish of our own rivers.

The next day was a fast, corresponding somewhat in the Japanese calendar to All Souls' Day of the Western church. At this time the spirits of ancestors are supposed to visit the homes of their earthly relatives. In the evening a fire is built at the entrance, to guide the spirits in; and the next day another is built to conduct them out. This is the simple form of the ceremony in the wilderness. In the cities and towns the houses and cemeteries are illuminated, and on the seashore every family launches a mimic vessel loaded with rice and wine to feed the departing spirits on their voyage to the other world. During this fast the Japanese live entirely on vegetables, eating neither fish nor eggs.

As we returned to the sea we saw across the bay the sulphur-coated cliffs of the great solfatara of Mount Oussu, and, far beyond it inland, the towering extinct cone of Shiribetz rising six or eight thousand feet from the plain.

Leaving Woshimanbe and Volcano Bay, we crossed over to Odaszu on the Japan Sea, part of the way on horses and part in small boats.

On the way we passed a solitary farm situated in the plain on the water-shed. The establishment of these farms, together with the granting of many privileges to their occupants, was one of the wise means by which the Government was endeavoring to colonize the island, which had hitherto been productive only in its fisheries.

We had hardly arrived at Odaszu when an officer appeared, announcing that the magistrate of the district would soon wait upon us. He came immediately with all his retinue, and entered our apartments with two or three officers. In our interviews with the officials who had been in the habit of meeting foreigners we had always adopted the usual compromise between foreign and Japanese etiquette, but we now were to receive an officer who knew nothing of this compromise, and to whom a shake of the hand would have seemed as ridiculous a proceeding as the salutation by rubbing noses seems to a European newly arrived among the South Sea islanders. There was no escaping it; it was clear we would have to conform to the complicated Japanese ceremonial.

Accordingly we ranged ourselves and the officers of our escort in a row, squatting upon our marrow-bones, while our visitor and his attendants faced us in another row, exactly five feet distant. This done, using our knees as pivots, every man threw his body forward, with the palms of his hands resting on the mat, and regarding his vis-à-vis for an instant, lowered the head till the forehead rested on the floor. In this position each side murmured in a low tone the customary formula, and then raised the head just far cnough to see that the other side was being equally polite. Another lowering of the head, and another formula, and the ceremony was ended. Returning again to the usual sitting position, not without a strong tendency to vertigo, on my part at least, we began an informal conversation, assisted by the fragrant tea and tobacco of Japan. Our visitors soon left us to rest from the fatiguing journey of the day.

The next day, after a precipitous descent into a deep gorge, we reached, before sunset, the hot springs of the Yunonai. Through this ravine there runs a small torrent which has its source in the crater of the solfatara of Mount Iwanai. Where our route crossed this creek there are several hot sulphur springs, and a small inn, a branch of the principal inn of Iwanai. The springs have temperatures varying from 104° to 122° F. In the warm detritus which surrounds these, there harbor countless harmless snakes

Another long and difficult ride over the northern part of the Raiden brought us to Iwanai and the broad terrace plain which rises from the sea to the inland mountains.

Iwanai was one of the principal towns on the island, and the residence of a magistrate. This officer waited upon us as soon as we arrived, and we went through a repetition of the customary ceremony, for we had to make requisitions on him for the animals and guides to take us to the volcano of Iwaounabori and its sulphur works.

It is worthy of remark that on the plain at the foot of the mountain we found a large area covered with wintergreen, bearing white berries. The occurrence of this genus, *gaultheria,* which is, I believe, unknown on continental Asia or Europe, is another striking point of resemblance between the floras of northern Japan and the United States.

It was on the top of this peak that, after being lost in the great beauty of the scene spread out before us,—as my vision roamed over the vast extent of forest—I became more strongly impressed by the difficulties which we should have to contend with in an exploration of the island. The presence everywhere of the dense undergrowth of cane seemed to render the interior inaccessible. In cutting a path through this there remains a dense mass of hard, sharp-pointed stubs that pierce the legs of horses.

After taking lunch near the small shrine of the San Gin (mountain god), we descended to the sulphur works. Here also some one has worked in ancient times, and an old iron cauldron of great size, which was found half-buried at this spot, was now used for the evening bath tub. It was mounted over a furnace in the open air. When the water was heated to the right point, the bather got in, and presented, as seen through the smoke, a scene which reminded one of boiling martyrs of old.

Near Ousubètz we came upon a series of sandstones and shales, inclosing three seams of superior bituminous coal, the largest bed being about four feet thick. We spent the hour before sunset in rowing among the rocks off Ousubetz, admiring the richness in form and color of the marine life exhibited in the fissures and on the sides of the rough rocks. Brilliant starfishes and shells were clustered in the bright and many-colored sea mosses, out of which grew, like delicate flowers, large sea anemones. Many fishing boats were engaged in taking the haliotis from the rocks. This was done by means of a long, three-pointed spear. We found this mollusk to be an excellent substitute for oysters when made into soup. The Japanese are very fond of this, as they are indeed of almost everything that lives in the sea. Sea slugs (*beche-de-mer*), cuttle fish, sea urchins, and sea weed of many varieties would serve to head a long list of marine animals which are, in reality, excellent food. They occur on many coasts, including our own; but the Japanese alone seem to turn them to practical account. The same remark might be applied to vegetable productions of the forests. In one class especially, the fungi, there seems hardly to be a variety—whether growing in the forests, or even on the woodwork in mines, or cultivated in gardens—which does not find its way into Japanese soups.

As the summer was now too far advanced to extend our reconnaissance to the northern part of the island, we decided to return. A boat, propelled by eight oars and four sculls, aided by a large sail, brought us rapidly to Iwanai.

As we had to continue our journey by sea, we were at the mercy of the weather, which for two days delayed us. This, however, gave me the opportunity of seeing the ceremonies of a great Sintu festival.

A vista of temple gateways leading to a small shrine was lined with box lanterns eight or ten feet high, supporting similar horizontal ones overhead. Among the countless decorations painted on these paper transparencies, were many representations of the phallus. During the afternoon a procession left the temple bearing the inner shrine. A staff-bearer at the head was followed by a man carrying a stand to receive gifts. Next came two men with sticks, from which hung ornaments of white paper, and after these a drummer, fifer, and cymbal-bearer. Behind these strutted the "god keeper," fantastically masked with flowing white locks, and a nose six or eight inches long projecting from under a helmet.

He wore high stilt-shoes, and bore a large spear in the right hand. Following the god keeper came a number of retainers leading a caparisoned horse, and bearing spears, bows, and guns, the insignia probably of the priest's office. Strangely enough, the man who represented the god keeper was merely a cooly, hired as a substitute. The true priest, if such he may be called, walked behind the procession in civilian's dress.

During the day and evening worshipers, dressed in their best clothes, approached the shrine after washing their hands at a small tank. Throwing a few coins into the gift box, they prostrated themselves, uttered a short prayer, rang the shrine bell three times and withdrew. The approach to the temple must be made with a pleasant face, and indeed there seems to be an entire absence of asceticism in the Sintu cultus. Offerings of rice, wine, etc., are brought; but if the custom of offering sacrifices was ever developed to a further extent, it has been modified by Buddhism. We left the boat at Isoya, where we spent the night.

I think it was here that we had an interesting experience. During the evening there floated to our ears sounds of revelry from distant rooms. The house having been taken for only our party, I went with Takeda to investigate. In the middle of a large room the negro Trusty was dancing a lively shake-down. Around him were seated a large circle of gaily dressed girls from the "tea-house," all laughing and clapping hands to time.

Trusty was having the time of his life. He had given a roll of rich silk to each of these compliant damsels. We found that he had passed for the head of the expedition and had paid liberally to have his horse saddled.

The mystery was solved in Hakodade. Trusty had slept in the room that contained my safe. He had found the duplicate key and used it the night before we started. Hence the silks and revelry and the painted ladies. Blake handed Trusty over to the Consul.

In crossing one of the small rivers, near where it empties into the sea, an accident occurred which might have been attended with serious results. The stream was spanned from bank to bank, about ten feet above the water, by a bridge constructed only of four large timbers laid loosely side by side. The two inner beams were squared, but the outer ones were left unhewn. Onto this narrow bridge five Japanese officers had already preceded me, when I saw that every one of their horses was treading against the side of the outer round timber, and rolling this from its place. Foreseeing an immediate catastrophe, I backed off and gave the alarm. But the warning came too late. The words *abnai! abnai!* had hardly left my mouth when the log rolled from its place, and the horses plunged with a heavy splash into the torrent below. The riders, with the skill of Japanese horsemen, landed upon the bridge and escaped unharmed. The animals also suffered nothing worse than a wetting.

I was struck by the more flourishing condition of the inhabitants of the imperial domain, as compared with those of the territory of the Prince of Tsungara, which we now entered. There was a general air of dilapidation in the villages, and of thriftlessness among the people, in the region we were now passing through, which spoke of the imposition of burdens disproportionate to the sources of revenue. The line of demarcation between the two conditions was as sharply drawn as the geographical boundary. The cause could not lie in Nature, for the sea, which was in both the only source of revenue, offered its treasures alike to both. The reason most probably lay in the policy of the Taikoonate, which during more than two centuries had been exerted to impoverish the feudatory lords of the Empire by exacting from them the constant maintenance of large armies and of great establishments at Yeddo. To meet this constant drain, taxation must have been pressed to the utmost, while the means thus raised were in great part expended in the imperial city, and on the road thither; thus enriching countries which were practically foreign, instead of circulating for the benefit of all the classes at home.

Continuing our journey by boat, with a breeze which just filled the sail, we threaded our way among countless islets. Nothing but the most intimate knowledge of this coast could have guided us safely through the narrow channels separating rocks which lay bare after every wave, and which almost touched us on each side. But the sense of danger is often lulled by the increasing confidence in one's guides; so here, after having passed several times through places which seemed to threaten certain destruction, we withdrew our attention from the terrors beneath to the fantastic forms carved by the waves out of the soft rock at the base of the overhanging cliffs, and to the grander view of the long perspective of headlands and islands, forest and sea, drawn before us.

The chief productions of this part of the west coast are haliotis, beche-de-mer, cuttlefish, some herrings, scallops, together with sea weed and sea urchins. All these form articles of trade with the other islands, and of export to China.

Continuing our journey now by horse, now by boat, we reached Ousubetz, whence we were to ascend a small stream into the mountains.

At the village of Ousubetz there was being built a large penitentiary, to which prisoners from all parts of the Empire were to be sent, and where they were to work at different trades. This experiment was being tried in imitation of American state prisons.

On an excursion into the interior we passed several warm springs with temperatures from 129° to 137° F. and containing much lime and iron. These are the favorite resort of many invalids.

A very large and cavernous deposit of ferruginous tufa surrounds the springs. In the never-failing heat imparted by the neighboring water to this rock large families and colonies of harmless serpents live and multiply, enjoying, as the presiding genii of the place, a perfect immunity from harm. Their cast-off skins cover the ground, rot in the water, are entwined among the plants, or dangle as streamers from every hole.

All this recalls something. One day in Hakodade one of Takeda's servants came bearing on a tray a large dish. With polite words of greeting from Takeda he set it before me saying it was *ibi*. The dish was garnished in the delightful manner customary in such Japanese gifts. Excepting eels I had eaten about everything that lives in Japan above ground, under ground, or in air or water. This was a delightful novelty. While eating it occurred to me that eels ought to have cartilaginous skeletons; but these had bones. In dire need I had once eaten rattlesnake, so I could still look on the good quality of the dish before me with pleasant memory.

Just then Blake came in. I said:

"Takeda has sent us this excellent dish of *ibi*. See how nice it is." Blake ate with enjoyment till I said:

"I never knew that eels had bones."

Blake took a rapid leave. He never forgave me. However, it was the first chance I had had to get even with him for getting a superb four-inch crystal ball I had been trying to buy.

At Tomarigawa we left the Japan Sea to cross to Volcano Bay, stopping on the way at the mines of Yurup. Here there were fissure veins bearing ores of lead, zinc, and copper. The highest production was about four tons per month. The following schedule of the daily expenses is inserted as a curiosity. The laborers are supplied by the Government with rice.

DAILY EXPENSES OF THE YURUP LEAD MINES

Accountant clerk	$0.05
Head miner	.07
Twenty-five miners, at 5 cents	1.25
Eighteen coolies, at 4 cents	.72
Thirteen women, ore dressers and washers, 2 to 6 cents	.45
Daily consumption of iron	.12
" " " steel	.04
" " " mats and ropes	.06
Total	$2.76

Here I made the first application of powder to mining that had ever been attempted in Japan. The men readily learned the art of drilling, but could not be persuaded to take any part in the charging, tamping, and lighting of the first hole. Neither they nor my officers would stay to watch the process, but left the mine in a body. They came back immediately after the explosion, fully expecting to find the works fallen in, and the rash foreigner buried in the ruins. Their delight was indescribable when they saw the result of the blast, which, at the cost of an hour's labor, had accomplished more than they were able to do by their own process in several days. After this they stayed to learn all about the tamping and lighting, and very soon went through the whole operation without assistance. Then I showed how to place holes to the best advantage.

It is remarkable that the use of powder for blasting should have remained so long unknown in China and Japan, where it has been used for other purposes since very early times. It was amusing, too, to find the Japanese Government in 1862 urging to me the same objections to its use in mines that were put forward under similar circumstances by the governments of Europe two or three hundred years ago. It was not without some difficulty that I obtained permission to make the trial. The result was so successful that before I left Japan I was told that several princes had sent men to Yurup to learn the new process.

When, forty-two years later, during the Russo-Japanese War, I read that the Japanese had taken Port Arthur by blowing up a gate—to rush in while the débris was still falling on the soldiers—the thought came to me that this blast was the lineal descendant of the one I lighted at Yurup.

At Yurup there were also two warm springs with a temperature at 104° F. The water was used in winter for washing the ores, and for this purpose was conducted into a large tank built in one corner of the ore house, where it served also as a bath.

In neatness I do not believe that the Japanese are surpassed by any people; and if "cleanliness is next to godliness," certainly the daily parboiling to which all of the population submit themselves may go far toward absolving them from the other sins. Every house had its bath—a simple tub, large enough to allow one to sit down with the knees doubled. A copper tube passing through the water at one end, and having the bottom perforated for a draught, contains a little burning charcoal which, on the principle of the Russian *samovar,* soon heats the bath. Toward evening this was warmed, and the household, beginning with the master and ending with the servants, all in the same water, took their turns.

Although every house in Japan had its tub, the towns abound in public baths, where, for a trifle, a more luxurious scrubbing could be had. And these public places were an institution of the country quite as remarkable as any other. There was a door marked "for men," and one "for women"; but this distinction ended after crossing the threshold, for, on entering, men, women, and children were seen scrubbing each other, enjoying cold and hot douches, and making a perfect babel of the room with their loud chattering and laughter.

This custom, shocking as it seems to a European, appeared to be perfectly compatible with Japanese ideas of propriety, and a Japanese lady of undoubted virtue found nothing wrong in it.

During my stay at one of the mines on Yesso, where there was a hot spring—it may have been Yurup—I went one evening with Takeda to take a bath. The small spring house had an outer room for servants and miners, and an inner compartment for the officers and their families; but this division was only above the water, which ran from the spring into a box about two feet deep and twelve feet long. As we opened the door to the inner compartment we found the wife of the chief officer bathing with her children. Before I had time to withdraw the lady came out of the water, and politely insisted on going with the children into the other part. The whole thing was done so gracefully, notwithstanding complete absence of clothing, and without the slightest embarrassment on her part, that I began to wonder from what direction would come the next shock to preconceived ideas of propriety.

For the following year I had chosen for my work a geological survey of the accessible parts of the island. I believed, from my observations along the shore, that a study of the exposures along the coast around the island, supplemented by such as could be found in the interior along the larger rivers, would yield an economically valuable knowledge of the geology of the interior. Mr. Blake would devote his efforts to instruction in mining and chemistry. This seemed to solve most satisfactorily the problem of how we could best serve the Government.

A severe winter set in and we settled down in Hakodade to give instruction. I was now able to speak the common dialect fairly well. My companions had learned much on the excursions, in a rule-of-thumb way, about minerals and rocks and geology and about mining. There was thus a common ground on which to build, for we had specimens of the ores and other minerals and rocks that they and I had collected, as well as their own and my notes and sketches of geological structure and of veins of ore. Excepting the names of minerals and rocks, which they memorized, hardly any foreign words were used; sketches largely took their place.

First in mining and metallurgy I gave them talks on the early methods as I remembered them from Agricola. Then the modern methods of mining, including the machines used. This part was made more easy because one of the men had an album in which he had copied all the illustrations of the machines made at the Cockerell works in Belgium. They were drawn in minute detail with the fineness of steel engravings.

The men showed intelligent interest and took full notes with sketches. I did not as yet attempt much in metallurgy.

We were not without social amusements in the isolated city. I remember well a masked ball given at the Russian Consulate on the occasion of a visit of some Russian war vessels. I put on the full suit of a Japanese warrior. Shekshi, my soldier-factotum, held the bit while I mounted. The terrified horse reared high and, as I brought him down, his hoof cut a gash in the scalp of Shekshi's wife who was near. She bravely made light of it, so I started. The moon shone on my dark armor, on the awful visor that hid my face, and on the great horns above the helmet.

My horse plunged, people wondered and scattered.

I had never been in the Consulate. The approach was up a high flight of granite steps. If the Russians rode up these, I must; but how would my charger like it with a rattling load. With good horse-sense he gave his whole attention to his feet. The astonished porter asked why I hadn't chosen the level entrance on the side street; no horse had ever climbed those steps.

Everything at the ball was nice excepting that in dancing my iron helmet kept bad time on my skull. At first no one guessed me, but word had spread that the Japanese warrior had ridden up the steep flight of steps. Several said: "Of course you won't leave by that way; you couldn't."

"Why not?" I answered. "They are good practice for my horse." Of course I did not want to try this much more dangerous descent, and the thought that I had thus accepted a challenge to do it brought shivers that luckily were not needed. For when the party broke up I found that the host had ordered the locking of the high entrance, and had my horse taken through the gardens to the other doorway.

During this time there was growing the revolution which was to make, within a decade, the change from feudalism to a constitutional monarchy that required four centuries in Europe, and that made possible the position among the nations that Japan has since attained.

Among the charges brought against the Taikoon by the anti-foreign party was one which accused him, in engaging us, of throwing the resources of the country open to foreign spies. Finding itself losing ground, the Yeddo Government was forced to suspend many of its liberal schemes, and first of all to bring to an end our engagement. This was done in February, 1863.

The notice came overland by messengers, who brought a large quantity of presents. Takeda looked at them and remarked that the things did not agree with the list that accompanied them, and that much inferior objects had clearly been substituted.

So this was the end.

What had we accomplished for the country? Not much beyond a beginning. We had examined all the mining prospects that we had been asked to look at and found them of little promise. I had introduced the use of powder in mining. We had determined that, in the almost impenetrable forest that covered the great island, search for deposits of metals must be largely left to chance and to prospectors. We had found one occurrence of promising coal and indications of mineral oil, both of which seemed to promise to be of value. And there was a strong possibility of other occurrences of these on the island.

The Empire is rich in deposits of useful metals, and upon the island south of Yesso these, including iron, have been worked since very early times. The Japanese could mine only above the lowest water level attainable by their methods. The natural result of this was that doubtless large numbers of veins bearing gold, silver, lead, and copper had been abandoned when still productive. Indeed, it would seem that only the introduction of pumping machinery and blasting would be necessary to continue the production of these and other metals. As the Government considered it dangerous for us to visit the mining districts of Nippon, we had decided to plan such simple improvements as could be carried out as object lessons in a simple form at the mines of Yurup.

Unfortunately the lateness of the season had prevented my doing more than making the surveys, for access to the mine and for locating points of attack. This was educational, for I had Takeda conduct the instrumental work under my supervision.

As the hour of leaving drew near the young officers who had so long been my companions and pupils showed how strongly they felt a separation which threatened to put an end to the study of foreign sciences in which they had become engrossed. To several of them I was deeply attached, and that the feeling was mutual was shown by tears in the eyes of Takeda, Oosima, and Myagawa when the moment of parting came, and which were the only ones I ever saw in the eyes of a man in Japan or China. Takeda, Myagawa, Tachi, Ooshima, and Yuwao vied with each other in bringing presents, among which were precious albums of prints, and family swords, the choicest of heirlooms, which money could not have bought. It was useless to refuse the acceptance of objects which I knew they prized so much. They were men of high intelligence and cultivated minds, and possessing all the characteristics which with us constitute the thorough gentleman. Myagawa, who had mastered the English and French languages, has since twice been to Europe, as interpreter and secretary to Japanese embassies. Takeda was killed in the revolution. Oosima became head of the mining department. I had during several years letters from Myagawa—then Shiodo Saburo, as head of his family. He said that they all kept us in grateful remembrance.

During our sojourn in Hakodade I had incurred a heavy debt to the greater part of the foreign inhabitants for many acts of friendship and hospitality, especially to Messrs. Walsh & Co., and their agents, Messrs. Stevenson and Wheaton.

Profiting by the kind invitation of Captain Bassargine, we embarked for Nagasaki in H. I. R. M. corvette *Bogartyr.* The weather was very rough, and we had more than usual difficulty in making headway through the straits of Tsungara. Here a strong current rushes perpetually from the Japan Sea to the Pacific. During the winter months this and a constant west wind rendered Hakodade almost inaccessible to vessels coming from the east. After entering the Japan Sea and turning southwestward, every day's progress brought us into more Southern climates. As we approached the straits of Korea, countless picturesque islands, covered with a semitropical vegetation, offered a pleasant contrast to the snowy hills and leafless forests of the northern part of the Empire.

It was a beautiful morning at the end of February when we steamed up the long bay where Nagasaki faced us from a hillside. As I saw it that morning, bathed in sunshine, it lies in memory, a charming harmony of roofs, some of tile and some of thatch half-buried in rich foliage, and above this great solemn temples among towering pines and wide-spreading camphor trees.

As guest of our Consul, Mr. J. G. Walsh, I had here some happy days.

There were several coal mines in the immediate neighborhood, but as they were on princely domain they were inaccessible to me. After trying in vain to get permission to visit them, I concluded to leave for China, where foreigners had lately acquired the right of penetrating to the interior. Wishing to return to America by way of China and India, I had declined the invitation of Captain Bessargine to continue with him the voyage to San Francisco.

CHAPTER XXVI

SHANGHAI

MY leaving was hastened by a letter to Mr. Walsh from our Consul in Nagasaki I think, the house of Russell & Co. in Shanghai. The root ginseng was valued in China for medicine; and being extremely rare it brought a very high price. The Japanese had found it abundant on the island of Yesso and had sent cargoes to Shanghai at a great profit. As it was thought a safe way of transmitting money I had advanced $3,000 on a cargo bound for Shanghai. The letter to Mr. Walsh said that the increasing importations were greatly lowering the price of ginseng. The house asked for authority to act for Mr. Pumpelly to save his advance.

There was another item of interest in the letter. There had accumulated a large number of letters for Mr. Raphael Pumpelly in the Shanghai post office, and there was an Italian actor named Rafello Bombelli who claimed these letters. He said they must be his, his name was always being spelt in all sorts of ways. Fortunately, the house had heard of it in time to have the letters held till I could get there.

Writing of money matters, my salary from the Government was $5,000 in gold yearly from the time I was appointed, besides expenses and cost of instruments, etc. This was paid monthly in Japanese gold coins. The ratio of gold to silver in Japan was as 4 to 1 instead of 16 to 1. I converted the gold into bills of exchange on London, to be forwarded to my father. After I had been several months in Japan the Government found out that Japanese merchants were selling the native gold coins at an enormous profit to the foreigners. The merchants were beheaded, I was told, and new coins were

Sir Frederick St. John

The Author with Mr. Thomas Walsh at Peking, 1864

issued based on the ratio of 16 to 1. When my money reached America, gold stood at the highest premium it reached during the Civil War.

Toward the end of March I embarked for China on a sailing vessel. With feelings akin to homesickness I watched the green mountains of Kiu-siu and the Gotto islands till the last peak disappeared.

After a few days westwardly sailing, and already at a distance of two hundred miles or more from the China coast, the sea water lost its clearness, and became brownish-yellow, through the suspended silt which, brought by the Yangtz' Kiang and Hwang Ho from the interior of China, is rapidly filling the Yellow Sea and the Gulf of Pechili. Passing a day or two among the shoals at the mouth of the Yangtz' we at last entered the Wusung River. On either side of the stream high levees, covered with grass, shut out the view of the country beyond, allowing only glimpses of treetops and tiled roofs. Many Chinamen and dogs were always in sight on the embankments, and the passage of the river was frequently barred by fleets of junks, their decks literally crowded with diminutive natives, whose stolid faces, shaven heads, long queues, and incessant jabbering produced upon me an impression which was the foreshadowing of the endless monotony of life and character among this great race.

The city of Shanghai consisted of two parts, the old walled town and the foreign settlement, around which there had gradually collected an immense native population, mostly drawn thither from the surrounding country for protection against the Tai-ping rebels. During this visit I found Shanghai anything but a pleasant place. Through the whole of April there were incessant rains and fogs, rendering the streets of both cities almost impassable. Still I managed to take many walks through the old town, than which a more filthy place can hardly be imagined. The streets were very narrow, often muddy. In China nothing is lost; even the parings of finger-nails and the clippings of hair from the barber's shop are bought and sold for manure. I was therefore not so much astonished as disgusted at the frequent occurrence on the side of the street of large open privy pits, spanned by planks, and intended for the accommodation of the public and benefit of the farmer. Even the better streets, which were paved, were so narrow and so covered with awnings that the sun rarely entered, and in this warm, damp climate they were always pervaded by disagreeable odors.

I imagine that more than one generation will pass before there will be much change in the aspects of a purely Chinese city. All kinds of factories with modern methods and modern machinery are now springing up, but it will be long before neatness and sanitation will extend far beyond the foreign settlements.

Moreover cholera was raging in the city, and the death rate among the natives was appalling. The source of the epidemic was then a mystery. The chief distributor of cholera was then supposed to be water, yet the Chinese never used it unboiled. In the light of our present knowledge I have now no doubt that the spreading of the disease was due to the vast swarms of flies that issued from the privy pits in which they were bred.

Still the fascination of the lapidaries and bric-à-brac shops was too strong to keep me from roaming daily through the ill-smelling labyrinth of streets in search of precious things. The shopkeepers were not friendly to foreigners, who usually came out of curiosity, but I always succeeded in breaking the ice, though I knew nothing of the language, and used only signs and smiles, with which one can everywhere say much. In one of these shops, where I got on friendly terms with the owner, he brought out a cubical brocade-covered box about four inches high, from which he took another similar box, and from it still another, and so on to a fifth. Out of this he raised affectionately a transparent blue ball about an inch in diameter. I thought, as he held it up, that it must be glass, but it wasn't; it was a sapphire, a wonderfully perfect stone of a deep blue color. Lost in admiration, I asked the price. He wanted fifteen hundred dollars. I knew the stone absolutely as a mineral, but not as to its value as a gem. I knew that if its requirements as a gem were perfect, its value at home must be many times the price, otherwise it might have only the value of a mineral specimen. I had the money, but fifteen hundred dollars was a large sum for me to risk against a jeweler's demands. So I sorrowfully handed it back to the owner, and bought a superb rock crystal vase of ancient workmanship, from the looting in 1860 of the Summer Palace near Peking. I risked the price of this because I knew it not only as rock crystal, but as a choice work of art.

All the way back to the foreign settlement and all the day that sapphire ball haunted me, and kept before me in my sleep. In the morning I got up determined to take the chances, and went out to buy it. Alas! I spent days in tramping the labyrinth of streets only to fail in finding the shop. I know now that the stone was perfect in all respects.

China was probably, in the minds of most people, associated with the old picture in the school books of a man bearing a pole with a basket of rats at one end and one of puppies at the other. It was generally thought of as the home of all that was curious and ridiculous, and as the seat of every kind of vice. I confess that my first impressions of this strange people and their land were extremely unfavorable, but I pass these impressions by, giving only those, and in their proper place, which were the result of maturer observation.

Few travelers get more than the most superficial acquaintance with the natives, and too often reflect merely the views of fellow countrymen living on the spot. And these views are apt to be tainted by race prejudice, and by ignorance, and lack of human sympathy. This criticism applied in China much less to the missionaries than to the commercial foreigners; but even the missionary spirit was often lacking in sympathy with the social and religious ideals of the people—necessarily lacking, since adherence to these ideals prevented salvation. To the ordinary missionary the Chinese were a people degraded by worship of ancestors and idols, whose souls it was a duty to save from damnation. To the average commercial foreigner the Chinaman was a producer of needed articles, and a buyer of foreign goods. And if a foreign government showed contempt of the Chinese people by selfishly forcing upon them the horrors of opium, why should the average representative of Western civilization not make the life and rights of the Chinaman subordinate to his convenience?

I will give here one of the many instances which I saw illustrative of this line of conduct. A steamboat which had been undergoing repairs made a trial trip, crowded with many of the leading foreigners of Shanghai, all, like myself, being invited for a pleasure excursion up the Wusung River. As we were steaming at full speed we saw, some distance ahead of us, a large scow loaded so heavily with bricks as to be almost unmanageable by the oars of four Chinamen. They saw the steamer coming, and, knowing well how narrow was the channel, worked with all their force to get out of it and let the boat pass. As we stood watching the slow motion of the scow which we were rapidly approaching, I listened for the order to stop the engine. The unwieldy craft still occupied half the channel, the coolies straining every muscle to increase her slow motion, and uttering cries which evidently begged for a few instants grace. There was yet time to avoid collision, when the pilot called out: "Shall I stop her, sir?"

"No," cried the captain, "go ahead." There was no help for it. Horrified at hearing this cold-blooded order, I waited breathlessly for the crash, which soon came. The scow struck under the bow. A shriek, a shock, and a staggering motion of our boat, and we were again steaming up the channel. Going to the stern I could see but one of the four Chinamen, and he was motionless in the water. Among the faces of the foreigners on the crowded decks there were few traces of the feelings which every newcomer must experience after witnessing such a scene. The officers of the boat looked coolly over the side to see whether the bow and paddles had suffered any damage; and such remarks as were made upon the occurrence, were certainly not in favor of the victims. I should add that probably only a few of the passengers knew what had happened. This was fifty years ago; it could not happen now with impunity.

I am aware that in thus describing an incident which I witnessed as an invited guest I lay myself open to the charge of committing a breach of courtesy, and I should certainly have passed this by in silence were it not so important an illustration of the condition to which our intercourse with the Chinese had been brought by long years of misguided policy on the part of the foreign and native governments.

The instance I have cited admitted of no excuse, as a few minutes time could be of no importance on a pleasure excursion. It was too often the practice of foreign vessels to run into junks or boats that might be in their way, no matter how crowded with passengers these might be.

After such an occurrence I was not surprised to see foreigners, walking through crowded streets, hitting the heads of Chinamen with walking sticks to open a path, nor at the constant occurrence of similar abuses engendered and encouraged by the absence of any means of redress on the part of the natives.

I would not be understood as bringing a sweeping charge against all the foreign inhabitants of China. There were many noble exceptions, but as such they were powerless beyond the sphere of their own employees.

My description of these incidents, seven years later in *Across America and Asia* (1870), cost me some friendships in China, especially that of Mr. Edward Cunningham, to whose delightful hospitality I owed much of the pleasure of my stay in Shanghai.

The steamer Surprise belonged to a navigation company of which the house of Russell & Co. was the head. When Mr. Cunningham read my criticisms of foreign arrogance, he wrote to me asking the name of the steamer. In a letter to the *Nation* (March 3, 1870) he came to the defense of the foreign community, not indeed denying that I might have really seen the steamer incident, but assuming that there were probably reasons not known to me, in conditions of tide or channel, that made the collision unavoidable. He also denied, not the occasional occurrence of the other instances of brutality, but my right to generalize from those I had seen.

Mr. John M. Forbes also joined, as a former resident of China, with a letter to the *Nation* (March 24th) in which he mentioned having seen instances of brutality, but denied their frequency and said that they could not happen with impunity.

The correspondence on both sides was free from bitterness, but it brought about an estrangement between me and Mr. Cunningham that has always been most painful for me.

In reading again, after half a century, both my statements and the letters in the *Nation,* I feel that, while my statement was correct as to what I saw, I was probably wrong in making a too sweeping generalization; but individual incidents alone, if unpunished, were enough to show the contempt in which the foreigner held the Chinaman.

Mr. Cunningham's attitude surprised me all the more because there had been certain meetings in Boston in 1865 between Mr. Burlingame and Sir Frederick Bruce, at which Mr. Cunningham and I were present, in which the whole question of the attitude of foreigners toward the Chinese at the treaty ports was discussed. It was then decided that either Mr. Cunningham or I should write an article on the subject.

When, soon after this, Mr. Cunningham returned to China, the task fell definitely to me.

CHINA (*Geographic*)

China proper—about the size of the United States, east of the Mississippi—owes its isolation to the ocean on the east, while on the north and west it is shut in by the desert plateau of Mongolia, and the lofty highlands and icy mountains of Thibet.

Through it, from southwest to northeast, runs a system of mountain folds as does the Appalachian system in the United States and like the Appalachians accompanied by coal-bearing formations.

Winds have covered the northwestern provinces deep with fertile loess—dust from wind-wasted deserts. Great rivers fed by the glaciers of Thibetan mountains, and cutting through the Chinese ranges, flood their valleys and the lowland plains with equally fertile silt from glacier-ground rocks, and with vast amounts carved from the loess deposits near Mongolia.

It contains nearly a quarter of the souls who live on our planet. The density of population has so long wavered at the point of stable equilibrium between just enough food and too little, and has been so often reduced by famine, that through survival of the fittest there has evolved a people who are the most resistant of all to privation and show the greatest endurance in sustained work.

Its climate corresponds to its extent in latitude from the tropic to 40° North. Its soil is fertile, its mineral wealth widespread, and its people highly industrious.

Its great rivers and their navigable tributaries form a network of water transportation throughout the eighteen provinces.

Such is the basal structure on which has developed an indigenous and remarkable culture.

I had seen a Chinese boat arrive loaded with an exceptionally pure anthracite. I was told that it came from the Siang River in the middle of China. The longing to explore came over me.

Excepting missionaries few travelers had penetrated for information far into the interior. Huc had descended the Yangtze from Thibet. Blakeston has described that river. The geology of the Empire was absolutely unknown, for Richthofen had not yet undertaken his monumental work.

So here, as in Corsica, yielding to the call of the unknown, I engaged passage on the steamer *Surprise* bound for Hankow, the end of steam navigation up the Yangtze.

I had been for weeks living a quiet life in the hot and muggy weather of Shanghai. I had smoked a daily average of twenty-five Havanas. The morning I was to start I fell in a heap on the way to the washstand. I sent for the doctor. He examined and asked questions. At last he said: "Do you smoke?"

I said: "Yes."

"Then you must cut down to half. How many cigars do you smoke?"

"Twenty-five."

"That's killing here," he answered; "better stop."

He gave me a bottle of transparent red flakes of something.

CHAPTER XXVII

JOURNEY UP THE YANGTZ' KIANG

Going on board the *Surprise,* we steamed down the Wusung River, and out upon the broad estuary of the Yangtz'. The brown flood of this great river, the "Son of the Sea," empties into the ocean with a breadth of nearly fifty miles. It might be aptly called the "father of the land," as the immense quantity of silt rolled oceanward by its current is steadily adding to the continent.

During the first day of our journey, where the shore was visible, the land beyond was hidden by the levees. On the second day the tops of hills were seen in the distance, rising gradually above the horizon, and promising a variety in the scenery for the coming day. This promise, however, was not to be fulfilled.

Pacing the deck with the captain in the brilliant moonlit night, I asked which of the steamers of the line was the fastest. "The *Huquang,*" he answered. "She is in all senses the fastest, as she has been left high and dry up the river by the falling flood. She'll be there for a month yet."

About midnight I was awakened by a loud noise under the window of my stateroom, which was just astern of the starboard wheelhouse. Looking out I found that the engine had stopped, and a number of Chinamen were trying to lower a boat from the davits. Just then the wheels began to move, and supposing that we had merely been aground, I returned to my berth and fell asleep, to be soon reawakened. We were again standing still, and the Chinamen who had been making frantic efforts to loosen the boat were gone, while a confused din from the forward deck betokened some most unusual excitement. Knowing that we had on board a large number of Chinese passengers, it occurred to me that they might be merely a gang of rebels or pirates, who had mutinied in order to seize and rob the steamer. Such things had occurred before in Chinese waters, and the mere thought of it caused me to buckle on my revolver before going forward. The long saloon was empty, and filling with smoke. Rushing over the forward deck, I nearly fell into a great hole, cut from the port side more than half-way across the vessel. A man on the opposite side of this hole warned me to lose no time in saving anything I might have of value, adding that although our bow was grounded on a sand bank, there was fifty feet of water under the stern, and that she must soon break her back and go down. The crew and the Chinese passengers were in the boats, and the steamer was evidently on fire. I hurried to my stateroom, and, after dressing hastily, set about saving first the money, then my charts and instruments, fearing that each instant's delay might make me a second too late. Carrying all my property except some toilet articles and a box of cigars, I reached the bow and found the man who had warned me already in the boat and on the point of leaving. Learning that we had been run into by the *Huquang,* a steamer which had been aground up the river for eight months, I rushed back to my stateroom and saved my cigars. Such of my readers as are hard smokers will sympathize with me, when I confess that the risk incurred in saving this luxury seemed slight in comparison with the annoyance caused by the privation of it for two days. Before we had pushed off the steamer was in flames.

The collision had been caused by a misunderstanding of signals. Mr. Osborne, the captain of our boat, was knocked overboard by the shock, and although a good swimmer, was never again seen. The collision had actually occurred before

I was aroused the first time, and when I had gone back to my berth the boat was fast sinking, and had I not awakened of my own accord I should probably have perished in it.

I remember noticing that a glass filled with water on a shelf at the head of my bed was not spilled. The ship had been cut through like an eggshell.

As soon as we had reached the *Huquang* the latter continued its course down the river, lighted on its way by the flames of the burning wreck.

After a delay of a day or two at Shanghai, I started again for the interior on the return trip of the *Huquang.* This vessel was one of the finest and fastest river steamers in the world, and, like the other boats of the line, was built in the United States.

A little more than a day's journey brought us to the wreck of the *Surprise.* The hull was burned to the water's edge, and little else was visible than the framework and warped rods of the machinery. This boat was once a favorite steamer on the California coast.

About four miles above the scene of the accident we passed the point where the imperial canal crosses the Yangtz' and entered the treaty port of Chinkiang. This city had formerly great commercial importance from its position at the intersection of the two great routes of traffic. But during later years the silting up of the canal, and the destruction by the rebels of industry and trade throughout the productive neighboring country, had reduced it to a miserable condition.

In the middle of the river there rises a high and picturesque rock called Silver Island, which forms a favorite subject for native artists.

Above Chinkiang we left the lowlands and entered the hilly district, which, surrounding Nanking with a radius of forty or fifty miles, rises like an island from the great plain. As we approached the ancient capital of the Empire, its gray walls were seen winding across the tops and along the crests of the hills, but the city itself was mostly hidden by the inequalities of the surface. It was then in the ninth or tenth year of its siege, and few of the monuments of its former greatness had been spared by the hand of war, or the fanaticism of the rebels. Its grand pagodas and the porcelain tower were so many heaps of ruins.

The rebels, not being disposed to openly antagonize the foreign powers, did not interfere with the steamers on the Yangtz'.

The progress of the Taiping rebels was everywhere marked by destruction, rapine, and murder. Nowhere did they attempt a reorganization of the industry and society which they had trampled down.

They left an awful track of desolation through southern and central China, to which had been added the horrors of a great flood. The Hwang Ho (Yellow River), which had for centuries been confined to one course by a system of levees, had gradually raised its bed until the stream was high above the surrounding country. Only by the annual expenditure of many millions of dollars, and the constantly applied labor of an immense force of men, was this turbulent river kept from bursting its barriers. The exhaustion of the imperial treasury by foreign and internal wars, and the official corruption reigning throughout the Empire, had occasioned an almost total neglect of this, the most important public work.

On the arrival of the rebels their ranks were swelled by the disaffected and starving guardians of the river. The neglect of the embankments was followed by a breach near the city of Kai-fung. For several hundred years the Hwang Ho had flowed in an east-southeasterly course into the Yellow Sea, but at different times during Chinese history it had traversed almost every portion of the great plain. Bursting its northern barrier, this stream, one of the largest in the world, now poured with its whole volume over the plain of Chihli and Shantung, submerging immense areas, and finding outlets in the Gulf of Pechili, several hundred miles north of its former mouth in the Yellow Sea. When we consider that the average population of these two northeastern provinces was about four hundred and fifty to the square mile, and that the region overflowed was by far the most populous, some idea can be formed of the magnitude of the suffering which must have been caused.

In addition to the great loss of life there came the misery entailed by the destruction of crops, and the plunging into beggary of dense populations. These starving millions, pressing in among their more fortunate neighbors, soon reduced the whole country to a condition of famine and anarchy. A necessary result of this state of things was the gathering of numerous and large bands of robbers.

Three years before my visit a new element entered into this long contest. An American by the name of Ward, acting under a commission from the Imperial Government, and assisted by a few daring foreigners, organized and disciplined a force of native soldiers. Thoroughly practised in the Western drill, kept under the strictest discipline, and led into action by the bravest of officers, these native troops entirely disproved all the Western ideas concerning the efficiency of Chinese soldiers. Inspired by the reckless daring of Ward, who was always first in the breach, the men showed themselves unflinchingly brave; and as they wrested by storm city after city from the rebels, they won the name of the "Ever Victorious Braves." General Ward was killed at the taking of Tsekie, and the command was transferred to Burgevine, one of his assistants, and like him an American. Continuing in their successful career, the "Ever Victorious Braves" increased the number of imperial victories, until at last, under the command of Major Gordon, since known as "Chinese

Gordon and the hero of Khartoum," they captured the city of Suchau, which next to Nanking was the chief rebel stronghold. The backbone of the rebellion was now broken, and the taking of Suchau was followed in a few months by the fall of Nanking, after a siege of nearly eleven years.

Ward was a free lance who had an interesting past. I am sorry that I missed the chance of knowing him. He had been of the filibusters in Central America. Escaping from there he became a sailor, and mate on a vessel sailing from San Francisco. Soon after sailing there came up a severe storm. The crew rebelled and stayed below in the forecastle. No amount of profanity could bring them out to take in sail. Ward dropped an opened keg of powder into the forecastle, then flourishing from above a burning brand from the cook's galley, and using much ungenteel language, he brought those men to a quick sense of duty. When he arrived in China the sea was swarming with pirate junks. With an eye to business, he contracted with the Chinese Government to destroy the pirates at so much a junk. Using the old steamer Confucius he made a fortune, and nearly rid the sea of pirates, though it was said that to him all junks were pirates.

At this time the Taiping rebels had taken many important cities near Shanghai, and were kept away from that port only by fear of the foreign warcraft. Ward contracted to take these places at so many thousand dollars a city, and he did it.

After his death the Chinese Government raised a monument to his memory, and ennobled him, which meant ennobling not only him but all of his ancestors, though not his descendants; the aristocracy of China has always ascended and not descended—a very economical system.

But let us return to the narrative, from which the sight of the beleaguered city has drawn us into a digression. Neither Suchau nor Nanking had yet fallen, although one of the longest sieges in history was drawing toward its close.

The walls of Chinese cities generally inclose a large area of arable land, but no amount of food thus obtainable could long support a large population. I confess that it has always been to me a source of wonderment how the inhabitants were kept alive during the long sieges of history. Perhaps the practice at Nanking may offer a solution. It is said that every morning, between certain hours, there was a cessation of hostilities, during which time market was opened in the besieging camp, where the rebel garrison could purchase all the necessaries of life. I believe this to be true.

Passing out of the imperial lines, we steamed up the river, now through a broad valley with isolated hills rising from the plain, now approaching near to mountain ranges two and three thousand feet high. For many miles below Kiukiang the east bank of the river is determined by a range of barren hills, outlyers of the Kingteh group, famous for its kaolin and porcelain manufactures. A high and picturesque island rock with precipitous sides rises in the middle of the river. This is the Siau-ku-shan, or Little Orphan Island, and the quaint buildings which crown its cliffs have a historical and legendary interest among the Chinese. During a storm a boat containing two boys and their parents was sunk, and the parents drowned. A great frog took the boys on its back, but the youngest boy, grieving for his parents, threw himself into the water and drowned. On account of his piety he was changed to a rock which grew upward to form the beautiful peak of Little Orphan Island. The frog carried the older child into Poyang Lake where he too was drowned and arose in the form of Great Orphan Island. In the same lake the frog, for its humanity, was changed into the island called Frog Rock. Above this island the high hills forming the east bank are cleft to their base, opening to the traveler a view to the outlet of the Poyang Lake through a long gorge, with high limestone cliffs, and islands with broken outlines. This gorge is the gateway for the commerce of the fertile province of Kiangsi, and for the great routes of trade connecting the Yangtz' River with Canton, with Fuhkien, and with Cheh-Kiang. The Poyang Lake is connected with one of the largest tea districts by an intricate system of rivers and canals. The cities on its banks have long been the seat of refinement, and its picturesque shores are the scene in which are placed many of the popular romances, and form the theme of innumerable songs. In the wild recesses of the neighboring Liu Mountains there are sacred caverns and famous monasteries. It was near this lake that Abbé Huc had the illness which he has described with so much humor.

There were at Kiukiang many refugees fleeing before the rebels, and seeking protection in the city, which was now defended by foreign powers. A large proportion of these unfortunates had been well-to-do families, but now, reduced in numbers by violence or starvation, and plundered of everything they had possessed, they were indeed pitiful objects. Mothers, whose husbands had been killed or impressed by the rebels, brought their children to foreigners, begging them to adopt them, and praying in return only that their little ones might be insured against starvation.

Above Kiukiang the river breaks through several ranges of limestone hills, the rugged cliffs and outlines of which render this portion of its course extremely picturesque. Indeed, the journey from Chinkiang to Hankau is one not easily to be forgotten. The river runs for long distances parallel to high mountain ranges, now hugging them close and undermining their cliffs, now bending away and separated from them by gently-sloping terraces, and again bursting through lofty barriers in wild gorges. In other portions of its course it wanders through broad plains, skirting here and there low hills and terrace bluffs, the predominating color in these and in the banks generally being a bright red, from which the water obtains its brownish tint. The hills are barren; even a tree was rarely seen. But the signs of life were everywhere. The gray walls of cities were constantly disappearing behind the steamer, and others as constantly coming into view before it, on the banks of the river and inland from it. They spread out over the lowlands, were built upon slopes of hills, extended over the crests, or again entirely inclosed isolated elevations. Look where we would, we were sure to see the same gray walls, as dismally monotonous in color and form as were their inhabitants in appearance and habits.

At Hankau Mr. Breck, the American Consul, kindly offered me the hospitality of his house.

The cities of Hankau, Wuchang, and Hanyang, situated at the junction of the Yangtz' and Han rivers, were estimated by Abbé Huc to contain an aggregate population of eight millions. Although this estimate was probably much exaggerated, it is probable that the three cities, comprising a provincial capital, a departmental center, and a chief market town, formed the largest assemblage of population in the world. Hankau, almost exactly in the center of the Empire, was the focus of commerce for all the immense region drained by the upper Yangtz'. It was also the point of trans-shipment into steamers and sailing vessels for the trade of this region with eastern China and the foreign world. Here I saw clipper ships taking in cargoes of tea for the direct voyage to England. Moreover, it was the starting point for the large overland trade with Russia. It is now the point where the railway that crosses China from Peking to Canton intersects the great trade route of the Yangtz' River.

It was just two years after the capture of these cities by the rebels that I visited them. Hankau, always an important center, under the protection of foreign flags and the impetus given by foreign trade, rapidly became one of the most populous cities in the Empire.

Crossing over to Wuchang, the provincial capital, I was struck with the fact that while Hankau had far outgrown its former limits, the population of its neighbor had shrunken to a small fraction of its recent size. Under the guidance of some ragged soldiers, I took a long ramble along the top of the wall, which is said to extend fourteen miles around the city. It had suffered very much during the rebellion, and had recently been repaired at great expense.

Excepting along a few of the principal streets, the city was in ruins. Grass was springing up on the top of the wall, and among it there was growing the wild strawberry; but it had a sickening taste, which was common to this fruit wherever I found it in Asia. Descending from the wall, I started upon a stroll through the ruined part of the city; but, overcome by the accumulated filth, I was soon forced to abandon the attempt.

Hastening out of this foul atmosphere, I crossed over to Hanyang. This city was a complete ruin. Only here and there appeared an inhabited house, while from the top of a high ridge, which traverses the town, the desolation was visible on all sides. This narrow ridge is continued on the opposite side of the river, through the center of Wuchang, where several streets are said to pass through it in tunnels.

This was in 1863. In 1911 Ross ("Changing Chinese") tells us that Hanyang has an iron and steel plant employing 5,000 men. It is already selling its product on our Pacific coast.

In making the preparations for the continuation of my journey I was largely indebted to the kind assistance of Mr. Dick, of the Imperial Maritime Customs. While fearing that I should have to go alone, I found in the Rev. Josiah Cox a companion without whom I could hardly have accomplished the trip.

My plan was to penetrate the coal fields of southern Hunan, and, thence returning to the Yangtz', to ascend to Sz'chuen. But from every side we were warned against entering Hunan, as the population was infuriated against foreigners. Several months previously some lawless soldiers had descended the river in boats which they had impressed in Hunan, and while at Hankau had kidnapped an Englishman, and nearly murdered him on one of their boats. In accordance with the retaliatory policy then ruling in China, the English gunboats stationed at Hankau had burned the junk on which the outrage had been committed. This, instead of being a punishment visited upon the offenders, was an injury inflicted upon the innocent owners of the vessel.

The inhabitants of Hunan, who from their frequent intercourse with Canton had conceived a deeply-rooted hatred of foreigners, made common cause in resenting what they considered an act of injustice. The Catholic missions were attacked, their chapels burned, and the native Christians persecuted, while the bishop and his priests owed their escape only to the devotion of their converts. Although this had happened a year before my visit, the hatred of foreigners was said to be still in full force. The bishop and other missionaries of Hunan were at Hankau, not considering it possible for some time to reënter their field. The presumption was that it would be impossible for us to travel in a region where men who were in the habit of courting martyrdom, rather than of shunning danger, hesitated to enter. Still we determined to make the attempt. The first necessity was a disguise. Unfortunately for the execution of this plan, Nature had made us both decidedly un-Mongolian. Each of us stood nearly a head higher than the tallest Chinaman, and my light hair and blue eyes would have been very hard to disguise. The former could have been dyed, and the color of the latter hidden under a pair of blue Chinese goggles; but an insurmountable difficulty presented itself—I had thoughtlessly had my hair cut close just before leaving Shanghai, and there was nothing to which a tail could be fastened. So we concluded to make a virtue of necessity, and show that the proper way for foreigners to travel was as Nature and the tailors at home had made them. I confess it was not without many misgivings that we hastened our preparations.

After much searching we succeeded in finding a passenger boat of about eighty tons burthen, commanded by a skipper who assured us that he was thoroughly acquainted with the waters of Hunan and of the upper Yangtz'. A carefully worded contract was drawn up under the supervision of Mr. Dick and Mr. Cox, both of whom were well versed in the language and character of the Chinese. Almost the only provisions we laid in were rice, sardines, crackers, and ale.

CHAPTER XXVIII

BOAT JOURNEY ON THE UPPER YANGTZ'

We went aboard at midnight March 23d. The weather was hot, and the air loaded with horrible smells from the foul mud.

Quarreling over the terms of the contract kept us moored till late in the afternoon. By this time I was down with a low fever. Mr. Cox begged me to stay in Hankau till the fever should be over, but I felt that if my illness were a dangerous one I should be more likely to die in the foul air of the city than on the water. I had rather die in the fresh air on the broad river. This decision perhaps saved my life. I have never known what kind of fever I had. I was very ill for more than a week and had slow recovery. As soon as I could crawl from my bed out onto the boardwalk surrounding the boat, I lay down on this dressed only in silk pajamas, and had cold water thrown over me, then I went, still wet, back to bed.

Our boat was a flat-bottomed craft, with a house extending nearly two-thirds the length of the deck, and divided into four cabins communicating with each other. Giving one of these to our servants, and another to Mr. Cox's Chinese writer, we made ourselves quite comfortable in the remaining two. By means of sailing, sculling, poling, and tracking, with a crew of nine men, we managed to make about twenty miles a day against the current.

From Hankau to the Tung-ting Lake the river runs parallel to a range of mountains, whose rugged and barren crests, lying some miles distant to the east, form the boundary between

Hunan and Kiangsi. Between these and the river the surface is broken with low hills, while these are fringed with broad and gently-sloping terrace plains, terminating abruptly near the river bank in bright red colored bluffs. The opposite bank is flat, and with it begins the plain of Hupeh, an extensive lowland, the silted-up bed of a large inland sea of which the Tung-ting is only a remnant. The early historians speak of it as a swamp, but it is now cultivated to a great extent, while the countless lakes, creeks, and canals, forming a navigable network between the Han and the Yangtz', make every part of it accessible.

On the eighth day from Hankau we passed the departmental city of Yochau and entered the Tung-ting Lake with a favorable breeze. This water had the reputation of being visited by dangerous squalls. Therefore, on the morning before our entrance upon the treacherous water, and as a propitiation of the elements, the discharge of firecrackers and the beating of gongs were prosecuted with more than usual vigor. Not trusting, however, to these preparations alone, our skipper kept quite close to the eastern shore. This was much indented with little bays, miniature fiords, shut in by high red cliffs of the terrace formation. In the background the country was mountainous; ridge after ridge, made up of pyramidal and uniformly grass-covered hills, rising away to the eastward, form a green highland extending to the high and rugged mountain range which forms the eastern boundary of the province.

Two days of sailing and sculling brought us in sight of the southern shore of the lake. The season of high-water had begun, and the level was gradually rising. A lofty pagoda, whose base was washed by the increasing waters, served as a landmark to guide us toward the mouth of the Siang River. This pagoda was one of the few left standing by the rebels in their destructive course. These beautiful towers, which form the most characteristic feature of Chinese landscape, are always polygonal, and built with an odd number of stories, and are sometimes nearly two hundred feet high. The exterior is often highly ornamented, and indeed built with glazed tiles. The famous tower at Nanking was faced with blocks of fine porcelain. The walls, always of great thickness, are built to last for ages. Standing in close connection with the *fung-shui* doctrine, the strongest of the Chinese superstitions, they exert, as the people believe, a most powerful influence in controlling certain supposed currents in earth and air, which are held to be important agents in modifying, for better or worse, climate, crops, health, and even the ordinary actions of man. Strangely enough, one of the strongest objections raised by the Chinese against the introduction of telegraphs and railroads is that they would disturb the course of these currents, and bring calamities upon the nation.

Soon after entering the Siang River we passed the village of Siang-in. Prettily situated upon the bluffs, and abounding in shade trees, it was, as seen from a distance, one of the very few attractive villages which it was our lot to pass. It is celebrated for its manufacture of rough earthenware, from the red terrace clay. We felt half-inclined to suspect that the presence of trees was due to their value for making charcoal, rather than to any less utilitarian cause. Possibly, had we closely questioned the inhabitants concerning some of the largest and finest, we should have found that they were being spared till they were large enough to cut up into respectable coffins for some fat Chinamen.

The valley of the Siang-ho (ho means river) lies between high hills fringed with the same red terraces that border the lake.

Two days of tracking and poling brought us in sight of the walls of Changsha, the capital of Hunan.

During the past few days we had several times been seriously annoyed by attempts to impress our boat for soldiers descending the river. Hitherto Mr. Cox had prevented them from boarding us by explaining the power of our passport. But as we were slowly moving up the river, along the bank opposite Changsha, a party of soldiers had come aboard and raised the imperial flag before we were aware of their presence. In vain we urged the rights guaranteed by our passports. They insisted upon keeping the boat. Not wishing to resort to force we made a compromise, by which they agreed to remove the flag, while we promised to remain moored to the bank until they should return with an officer. It was clear that we should have to await their return from the city; and as the river, owing to the inundation, was a mile or a mile and a half wide, with a swift current, we could hardly expect them under two or three hours. We moored under a low bank, the bow of the boat being connected with the shore by a rope of braided bamboo.

A little before sunset several boats loaded with soldiers made their way across the river and landed just above us, and we immediately saw that they had brought no officer. Three of our former visitors came on board and renewed their demand for the boat. Mr. Cox met them forward, and, while refusing to give up the craft, first requested and finally drove two of them off; while at the same time, with the utmost coolness and a pistol, he prevented any more soldiers from jumping on board at the only place where the boat touched the shore. Till then an excited crowd of a hundred and fifty or more, villagers and soldiers, armed with swords and pikes, had collected on the bank, and had been shouting out to those upon our boat to kill the foreign devils. The remaining one, running aft along the platform which surrounded the boat, attempted to beat in my cabin door. Feeling that words would be no longer of use, although I was still too weak to be much out of bed, I threw the door open from the inside, and, weak as I was, gave the man a sudden blow as he started back, which sent him headlong into the river. This was the signal for a general attack. The mob having neither firearms nor stones, opened upon us with a perfect storm of lumps of sunburnt clay. They were more successful with these than with their pikes, which were too heavy to be conveniently managed across the twelve feet of water between me and the shore; still it was not always easy to dodge their thrusts, and not wishing either to be spitted on such a weapon, or to be beaten to a jelly by their missiles, I drew my revolver and opened fire upon the crowd. Unfortunately, in the confusion of the moment, I dropped the pistol overboard. However, I got another from the cabin, and reopened upon the mob, supported by my companion at the bow, who showed far more coolness than I did. The bullets caused the assailing party to fall back, and before they could return to the attack a new actor, or rather actress, came upon the scene in the person of our skipper's wife. Flourishing an immense knife, she rushed to the bow of the boat, and began to hack away at the bamboo rope by which we were moored, at the same time pouring forth such a torrent of abuse as can only flow in Chinese accents from the tongue of a Chinese virago. In the meantime the crowd, although kept at a distance, made her the focus of a volley of missiles. She stood the attack bravely, never flinching either from her work with her knife or from her torrent of abuse. Clearly the Chinaman was right who said that a woman gains in her tongue what she loses in her feet.

Suddenly the cable parted, and, yielding to the current, the boat whirled quickly into the stream. A new difficulty now arose. All the crew had jumped ashore and run off in the beginning of the fight, except the captain and one man, and these had hidden below the deck.

The woman now turned her attentions to these. Taking the lid from the scuttle she plunged her hand silently into the darkness, and, holding by the pigtails, dragged out first the man, then her husband. Then she said things that sent the men humbled to work.

All we could now do was to guide our craft toward a small island which lay about a mile below us. It was already nearly dark, and heavy clouds betokened a coming storm. We could see the soldiers embark and make their way as rapidly as possible across the river, where we knew there was a large force of their lawless comrades, and from these we expected a more determined visit during the night. We had hardly moored to the island before the storm came on, and with such a fury that it was evident we should be safe from any attack while it lasted. It was almost morning before the waters were quieted enough for us to send a man in the small boat to Changsha, with a letter to the Lieutenant-Governor of the province. In this document we complained of the soldiers, and asked for an escort to accompany us up the river beyond the city.

Soon after daylight a boat was seen coming toward us from the town. We watched it rather anxiously through our glasses, not knowing whether it contained friends or foes. We were, however, quite prepared for the latter, having all our arms spread out, including even an old "Tower musket," loaded with revolver balls. The boat, which was a large one, contained some twenty or thirty soldiers, among whom we discovered, to our relief, three officers; one of them was the chief of the river police.

As soon as these were seated in our cabin, they informed us that they had been sent by the Lieutenant-Governor to offer any assistance we might need. His Excellency, they said, had already received instructions from the Viceroy to aid us on our journey, and His Excellency had heard with the most profound sorrow of the attack made by lawless soldiers upon the honorable members of the exalted American country, and of the exalted English country. The soldiers, then on their way to Nanking, were desperadoes, robbing and murdering wherever they went, and were utterly beyond the control of His Excellency, or even of their own officers. These visitors gave us to understand that they were instructed to escort us during the rest of our trip on the Siang River; but either having formed an unfavorable opinion of our commissariat, or for some other reason, they suddenly left us a few miles above the city, inviting us to visit them on our return.

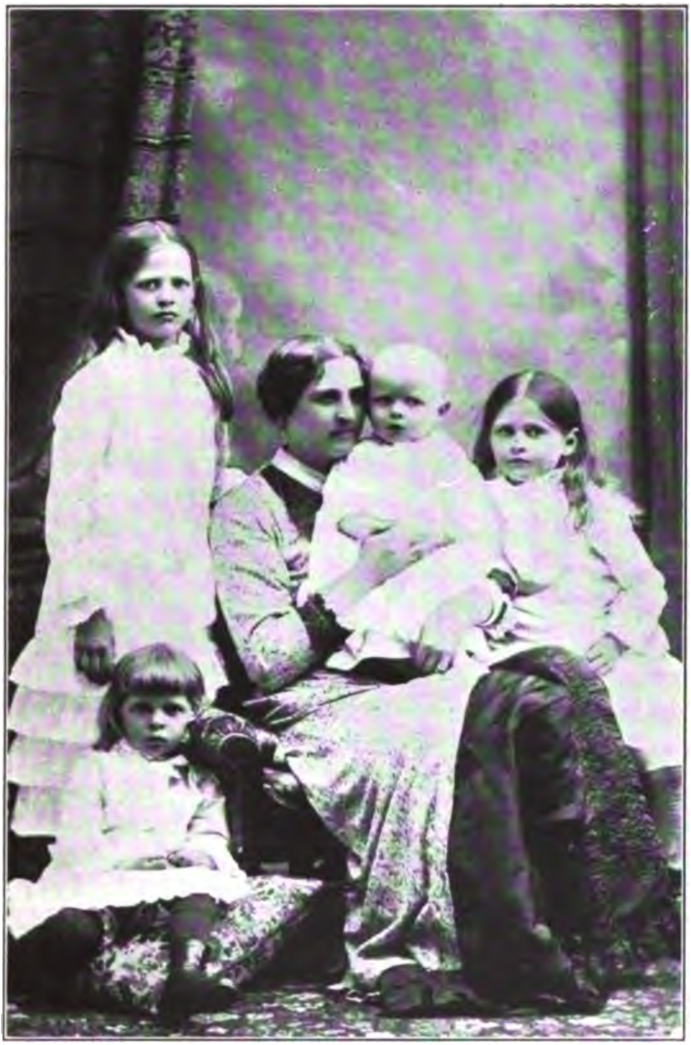
During two days we continued our journey upstream, gathering at every opportunity information concerning the coal districts. Many boats passed us loaded with coal from southern Hunan; but we observed that they were invariably smaller than our own craft. From the crews of these boats we learned that it would be necessary to change our means of conveyance, that even then we could hardly reach the mines in less than three weeks, and that the journey would be attended with much danger, owing to the excitement against foreigners. Finding these statements corroborated at every step, I determined to turn back at Siang-tan, because all the boats had been impressed.

Seeing a large number of kilns in operation at Ting-tan, below Siang-tan, we landed to examine the process. The decided coolness with which the people at first received us soon melted before the polite bearing and "Confucian quotations" of Mr. Cox, and we were soon being shown over the premises. The burning was carried on in circular kilns of from twenty to thirty feet in diameter, each containing charges, in alternate layers of limestone and coal; the inclosing wall being constructed at the same time with large blocks of the same stone. As the kiln increased in height the outer wall was secured by encircling ropes of braided bamboo.

Here, as everywhere else in the province, I was struck with the neatness and apparent prosperity of the people. It was almost impossible to believe that the horrors of the rebellion had recently swept backward and forward through this land, and that scarcely ten years had passed since army after army of imperialists and rebels had laid waste to complete ruin the fields and towns now so smiling and prosperous. What better argument could be brought forward against the repeated assertions of national decay, and of corruption, moral and physical, social and political, that were charged against this people? Surely the same laws of Nature must apply as well to nations as to the families and individuals of which they are formed; and as, in the human body, the rapidity with which a wound heals is a measure of health, so it should seem that the rapid recovery of Chinese provinces from the effects of gigantic political wounds is an indication of a most vigorous vitality.

The next day after leaving Siang-tan we came in sight of Changsha, and a dense forest of masts lining the shore for two or three miles in front of the city.

Thinking to enter the town, we proceeded to look up the boat of the officer who had escorted us, and who, being in command of the river police, lived on his flagship. Having found this and moored our boat near by, we sent on board our cards and compliments, and soon received a visit in return. Our former guest was this time accompanied by the chief of police of the city. The latter gentleman had just given orders to facilitate our visit to the Lieutenant-Governor, when we became aware of an increasing distant rumbling noise. Just then the attendants of our visitors rushed in, pale and excited, proclaiming the approach of a mob. Opening the door, our eyes were greeted with a sight which, once seen, cannot easily be forgotten. Some ten or twelve piers of boats moored close together lay between us and the shore. Beyond these the whole space between the city wall and the river was packed with men. Evidently the news of the coming of the



Eliza Shepard Pumpelly with Margarita, Elise, Pauline and Raphael W., 1881

foreign devils had preceded us and spread like lightning. Apparently the whole male population of a great city was pouring out of the gates. Surging and clashing like an endless and many-colored wave, it rolled down the sloping bank, and advanced over the intervening boats, which rocked and swayed, threatening to go down under the moving mass that was sweeping over them. From exclamations heard on every side, we saw that the intentions of the crowd were anything but friendly. They seemed many thousand strong. Pale with anxiety for us and for their responsibility for us, our visitors hurried into their boat, and, beseeching us to flee for our lives, shot across the river. The skipper had gone ashore, but without waiting for him we made quick work in casting loose, and in an instant were whirled into the current. We were none too soon, for already a half-dozen of the unwelcome visitors had sprung on board, and now to their great surprise found themselves prisoners. Now that we were safe we could look back with a different kind of interest on the imposing scene presented by the yelling mass of humanity. Our involuntary guests protested that they, as well as most of the crowd, had been attracted simply by a desire to see the honorable foreigners. They said, however, that the soldiers were inciting the crowd to mob us.

Many lives must have been lost in the frantic rush of these thousands over the boats, and unquestionably the authorities trembled till they had news of our safety. There was nothing that the Chinese officials feared so much as mobs in large cities. These disturbances gave full play to lawless characters, while the force of the police bore no proportion whatever to the necessities of such cases.

Seeking the island which had once before given us a shelter, we waited till the return of the skipper.

For some distance above the mouth of the Siang the west bank is bordered by a lowland, which forms the southern border of the lake, and is apparently a delta-plain, produced by the Siang, the Tsz', and the Yuen rivers. This lowland is traversed by many channels, into one of which—the Lung-tan Ho—we entered, in order to reach the west end of the lake without being exposed to the full force of the wind sweeping across a broad sheet of water. The greater part of the lowland was already inundated by the unusually high flood, and many farmhouses and even villages were partially under water. The inhabitants were fearing serious injury to the crops, and it was with great difficulty that we could purchase from place to place a scanty supply of rice. In anticipation of a famine, the authorities had forbidden the sale to non-residents of provisions in larger amounts than absolutely necessary to keep them from starving. Two days journey westward brought us again to the lake, and, after waiting forty-eight hours for a fair wind, we crossed over to the mouth of a river which communicates through the Tai-ping canal with the Yangtz' Kiang. The river-course was not distinguishable, owing to the widespread inundation; but when we reached the canal we found the country on either side ten or fifteen feet above the water.

One night we had arrived at one of the many inland custom houses at which duties and tonnage dues are collected on all shipping. Having to wait till daylight for the arrival of the officials, we found ourselves in the morning surrounded by a number of junks which had come in during the night. Among these was one which carried a flag with, in Chinese characters, "Great French Nation." Knowing that M. Simon, a French gentleman who was studying the agriculture and horticulture of China, was at that moment traveling on the Yangtz', and thinking that a meeting would be not less agreeable to him than to us, I addressed a polite note to him, which we sent on board by Mr. Cox's Chinese writer.

He soon returned, accompanied by a Chinaman, who informed us that M. Simon and his companion had taken another boat for their journey, and that the one which we had seen was then on the way to Changsha, carrying some wine. The man showed great trepidation, and betrayed throughout the fact that he was lying. After his return to the junk it weighed anchor instantly, and made off with all possible haste; but instead of steering toward Changsha, went in the direction of the Yangtz' River. After finishing our business with the custom house, we thought little more of the occurrence of the morning till we approached the city of Taiping-kau, at the entrance to the Yangtz'. As we neared the shipping we observed the Frenchman's junk sailing some distance ahead of us, and that a large number of boats loaded with people were putting off from the shore to see the foreign devils; but we saw also that these boats invariably turned away from our predecessor and came toward us. Now there is nothing in the world more trying to the nerves than to be over-run by a crowd of even friendly Chinamen. One must submit to being stared at, felt of, and having the texture of his hair and clothes tested; to having his hat and boots tried on and passed around the crowd, with the chance of their disappearing in the capacious pockets of some acquisitive visitor. And all this must be submitted to until the whole population of a large town has satisfied its curiosity. There is no other alternative than to submit or fight, and the less fighting that pioneer travelers do the better for themselves and for those who follow them. It had been our practice to avoid observation as much as possible in passing large cities, and it was therefore with a feeling of annoyance that we sat in our cabin awaiting the coming development. The boats soon began to arrive.

"Where are the Western barbarians?" asked several of the newcomers.

"There are none here," answered our men with perfect composure. "Why don't you go to the boat with the French flag?"

"So we did, but they told us there that that was only the baggage boat, and the barbarians were in this one."

"Do you suppose," returned our men, "that they would be such fools as to use that fine boat for baggage, and travel in this miserable craft? I think I saw the barbarians on that large junk," pointing to a vessel a little distance down the canal. Our would-be visitors started off on the false scent, while we passed the city, and moored for the night on the opposite bank of the Yangtz'. We ascertained afterward that M. Simon and his companions were really on board the junk which carried the flag.

We were again upon the broad swift stream of the Yangtz', or, as it is called in this part of its course, the Kin-sha Kiang —the river of golden sand—a name derived from the gold washings which occur along its course through Sz'chuen and Yunnan.

The next day, with the help of a light breeze, we made the town of Tung-tse, twenty-seven miles up the river, where we moored for the night. It was customary for the river craft to congregate in large numbers at night, for the sake of mutual protection against pirates. Thus, along the rivers, certain places had become mooring stations, to reach which the crews of junks bent every effort. At such places there were night-watchmen always walking the river bank, on the lookout for thieves from either land or water. We generally avoided these congregations, but, reaching Tung-tse toward sunset, we moored on the outskirts of the boats already there, and were soon shut in on all sides by those which came after us. A man has need to be deaf, or born a Chinaman, to endure with composure the ordeal of a night in such an assemblage. The din of a Chinese crowd was always great, but here it was as varied as terrible. The shoutings and invectives of the sailors, during the confusion of mooring, was soon mingled with the shrill notes of female voices. If each sailor made more noise than his skipper, the wife of the latter made more than all together. There seemed to be an incessant quarrel about food, between the crew and their mistress, who reigned as supremely as shrewdly over the commissariat. But for one word from a sailor the virago gave twenty, and with a force of invective which foreboded rather a diminution than an increase of rice. Loudest, because nearest, were the deafening accents of the mistress of our boat. After about half an hour of this vocal exercise, and when it seemed to be just reaching a climax, there suddenly sounded a gong. Quick as lightning every boat responded. From one end to the other of the vast fleet of junks, from a thousand gongs there poured out a deafening din, tearing the night air with the quickly-growing and dying shrieks and groans of the accursed instrument. The reader will sympathize who has often been tempted to violate the eighth commandment by carrying off the morning gong of some hotel. Hardly had the gongs ceased when a new noise arose—the explosion of thousands of packages of firecrackers. It may be doubted whether the observance of this superstitious ceremony arose from a belief in its power over the evil spirits, or from an actual knowledge of its effect on the female tongue. Certainly the victory was complete. Gradually, from all sides, the air became slightly tainted with the sickening odor of burning opium, and a deathlike silence reigned through the night.

The worst effects of opium smoking were probably not proportionate to the prevalence of the habit; otherwise, the increase of the practice must have threatened the vitality of the nation. This vice is one of the fruits of intercourse with European civilization. Little more than a century ago the drug was used only as a medicine. At the time of my visit the importation amounted to between 5,000 and 6,000 tons yearly, which did not represent, however, the amount consumed. Since then a rapidly-growing area in China has been devoted to its production. By 1865 the profit netted by the East India Company from the opium trade, after deducting all expenses, was estimated to have reached an aggregate of 67,851,853 pounds sterling. Who can estimate the consequence of the system adopted by a Christian Government to introduce this poison? As a violation of the laws of Nature, this deliberate paralyzing of a part of the great body of mankind must surely react upon the rest of the world. China, by the formation of its surface, by its climate and resources, and by the industry of its teeming population, numbering one-third of the human race, is adapted to become not only one of the most important exporting countries, but also one of the largest consuming markets for the products of other nations. By as much as we diminish the power of this population by just so much do we injure our own interests.

Only in the first decade of the twentieth century was Chinese effort, aided by public sentiment in England, able to obtain guarantees of rapid extinction of the trade. In the meantime, the native Government is energetically preventing the cultivation of the plant at home.

Above Tung-tse the river makes a great bend, and the character of its scenery changes. The traveler is here approaching the central mountain range of the Sinian system, which, though it probably rises not more than four or five thousand feet above the sea, extends through the heart of China, from the southwest to the northeast.

Above Ichang the river suddenly contracts, and the great Yangtz', which a few miles below was over a thousand yards wide, is here narrowed to two or three hundred.

Without previous warning we entered here the Ichang gorge, and into some of the grandest of river scenery. The walls rise eight hundred or a thousand feet, overhanging the water in perpendicular cliffs of yellow limestone, or forming steep declivities, covered with a luxuriant growth of semitropical plants. The river, confined to a deep and narrow bed, rushes with a strong current through this chasm.

Long and time-worn chains are clamped into the face of the precipitous walls. Catching these rusty links with hooks on long poles, the crew moved the vessel slowly against the current, the mast often rubbing against overhanging masses of rock. In other places flights of hewn steps, and narrow paths cut along natural ledges, offer a foothold from which trackers can drag the vessel by long bamboo ropes.

Deep inaccessible dells, filled with the rich growth of a semitropical vegetation, break the face of the vertical walls. Streams flowing from the mouth of caverns high above the river cool the air in their descent, while huge clusters of stalactite which they have formed—the work of ages—show well the chemical power of the smallest drop, side by side with the mechanical force of the rolling river.

The Ichang gorge is nearly seven miles long. Between its rocky walls, the whole volume of the great river, narrowed to less than one-third of its usual width, flows in a rapid stream of great depth, while watermarks, eighty or more feet above the winter level, show how great the rise must be during the season of inundation.

The annual inundation of the Yangtz' above Tung-ting Lake comes later than that of the Siang River which is fed from the precipitation on the warm southern mountains. The water of upper Yangtz' is raised by flood from the later melting of ice and snow on the lofty ranges of Thibet.

In passing through the gorge, we had crossed the whole thickness of the limestone strata from their youngest bed, at Ichang, to the metamorphic rocks which underlie them at the upper end of the defile. From measurements made by me at this point, I estimated this limestone formation to have a thickness, at right angles with the plane of stratification, of 11,600 feet, or more than two statute miles, though much of this thickness may be due to repeated faulting.

Emerging from the northwest end of the gorge, we came into an open though undulating country. Low and rounded hills of granite and gneiss, bordering the river on either side, betrayed the fact that we had reached the anticlinal axis of this important range of elevation. The lofty limestone cliffs recede abruptly from the river at the upper end of the defile, but away beyond the granite hills one can trace their bold outlines and castellated forms, as, after encircling the open valley, they again bend toward the river, once more to narrow its waters in the Lukan gorge.

We were now approaching the difficult rapids of San-tau-ping. Here, according to Blakeston, for a distance of several miles the river rushes with a velocity of eighteen miles an hour. Standing on the bow of our boat, and looking at the awful exhibition of the cataract before us—at the great river rushing and tearing down its rapid descent, and dashing over hidden rocks, forming strong eddies and whirlpools whose great circles, sweeping rapidly by, covered the whole surface—it seemed impossible that our heavy boat could be made to climb this hill of water.

But the experience of ages has taught the Chinese to look lightly upon these obstacles to inland navigation, and large numbers of vessels, of from a hundred and fifty tons down, are constantly making the passage. The inhabitants of a large village at the foot of the rapids obtained their livelihood by tracking boats past the cataract. Arrived at this place the sailors beat the gong, and the skipper, going ashore with a bag of copper coin, engaged a hundred and forty or fifty men. Great coils of rope were brought out of the hold and laid in readiness upon the deck. The long bamboo tracking rope was passed ashore to a long row of coolies, and the work began. At one moment an eddy would favor us a little way, as far as some point of rock, past the end of which the water rushed with fearful speed; then would come a tug. The vessel was connected with the shore by the strongest cables fastened to the rocks fore and aft, to secure us in case the tracking-line should part. In this way, by the slowest warping, the craft was brought to stem the wild current, her head being kept in the right direction by a long sweep, worked over the bow by several men. Other coolies, managing a long spar and poles, cleared her from the shore. Every now and then, in spite of all their precautions, violent shocks showed that we had struck on sunken rocks. Then all was excitement. The air echoed with the beating of the gong, accompanied by loud yells, signaling for the trackers to stop, and every compartment of the hold was quickly examined for signs of damage.

Twice our tracking-line parted, and then the labor of hours was lost, for the cables in each instance were badly fastened, and gave way. In an instant our junk was whirled into midstream and went spinning around like a top, while at the same time she swept with fearful speed down the rapids. With no little skill our men steadied her with the sweep, and having stopped her gyrations, worked the craft by means of the sculls into an eddy that brought us to the shore. Such accidents are not infrequent, and during the headlong course destruction follows if the boat strikes a hidden rock.

It is not an uncommon thing on Chinese rivers to see human bodies floating down the current; but disgusting and painful as this is upon the smooth river, there was something indescribably awful in the sight of a swollen and discolored corpse which, coming dashing and rolling down the foaming rapids, swept by us on its way to the ocean. The sands under the Yellow Sea must bury large numbers of Chinamen, the victims of internal wars and overwhelming inundations. During the last rebellion the smaller streams in the neighborhood of large cities were often choked with the dead bodies resulting from massacres. S. W. Williams says that at the time of the Manchu conquest three hundred thousand people were destroyed at Kai-fung (fu) alone by the breaking of the embankments of the Yellow River. The loss of life by sword and flood is proportionate to the immensity of the population; and of the victims a large part must have found their graves in the recent deposit on the coast.

A remarkable instance of the formation of a deposit of fine material in the swiftest part of the river is observable in these rapids. Granite rocks rising to the surface, near the shore, form an obstruction to the current, which is here from fifteen to eighteen miles an hour, causing eddies in their lee, in which a constant precipitation of sand takes place. Banks of quicksand are thus formed, their tops almost even with the surface of the river. Their sides, too steep to remain at rest, are constantly being washed away above, and as constantly replaced below by freshly precipitated material. At low water these banks line the shores, and during the high-water season I noticed one more than half a mile long and twenty-five or thirty feet above the river—the result of some previous high freshet.

For a distance of six or seven miles the river is more or less broken by rapids, caused by the granite core of the range. As soon as we had fairly passed this succession of cataracts we were near the entrance to the Lukan gorge. The high marble cliffs, after having described broad curves on either side of the river, converged suddenly, until they now stood before us two immense walls a thousand feet or more high, and separated only by the narrowed breadth of the river. The gorge is not a quarter as long as the one above Ichang. Soon we entered another grand defile, called the Mi-tan gorge. At the west end of this chasm the limestone disappeared beneath heavy beds of sandstone, and we had crossed the principal anticlinal axis of China. From the granite core, which occasions the rapids, the great limestone foundation dips southeastwardly toward Hu-peh, forming the long gorge; and northwestwardly toward Sz'chuen, forming the Lukan and the Mi-tan defiles. This great body of limestone exists throughout all China, capping and flanking all the principal ranges of elevation, and sinking far beneath the surface of the intervening areas. Wherever I encountered this formation I found it to disappear under the rocks of the Chinese coal-measures, just as it does at the west end of the Mi-tan gorge.

As soon as we left the defile the scenery changed. The high cliffs no longer encircled the valley with their lofty castellated forms; the formation to which they belong lay far below the surface, while its uplifted edge, forming a great mountain range, was behind us, stretching southwest toward India and northeast toward the Amoor River. The wild and broken scenery to which we had become accustomed was now succeeded by low and symmetrical hills of the coal-measures. This great anticlinal mountain axis had given me the key to the structure not only of China but of eastern Asia as well.

A few miles above the city of Kwei (chau) we came into the coal field of Kwei and Pah-tung. Here beds of soft anthracite are worked by means of galleries driven into the hillside. The seams are very thin, rarely attaining more than a foot in thickness.

We had been eight days in accomplishing the last forty miles of our journey, and the season was so far advanced that I felt obliged to turn back from this point, a step which I was the more unwilling to take as I was now rapidly recovering from a fever which had haunted me since leaving Hankau.

If the journey of the past week had been slow and tedious, the return was rapid enough. In a little more than a day we rushed through the Mi-tan and Lukan gorges, and in a few minutes jumped the long rapids, shooting at a fearful rate past places where we had spent days in ascending, and gliding between the walls of the long gorge at a rate we would gladly have lessened to enjoy the scenery.

As we approached Ichang we found the river covered with boats gaily decked with flags, and moving about amid the clang of gongs and the firing of guns. Numbers of long, slender boats, gaily painted, and the bows representing the heads of dragons, were running a warmly contested race. The good people of Ichang were celebrating a dragon-boat festival. This is said to be observed in memory of a much beloved statesman, Wuh-Yuen, who about 300 B.C. drowned himself in the Yangtz' Kiang, and the festival commemorates the rivalry of the people in searching for his body.

We were seventeen days in descending from Ichang to Hankau. Strong headwinds detained us for days at a time, and these delays were unfortunately by the great plain of Hu-peh, where there was nothing whatever to interest us. The entire country, so far as I traveled in the valley of the Yangtz', is barren of trees, as is nearly all of the Empire. The only timber we saw was in rafts which had come down the Yuen River from the mountains of southwestern Hunan, where it is said to be cut and sold to the Chinese by the independent Miautsz' mountaineers. Here and there about a farmhouse one may see a few small trees, but rarely enough to break the terrible monotony. And the absence of animal life, other than men and dogs, with here and there a buffalo, is another feature which strikes the traveler. But man is everywhere. Draw your boat along the shore in the most secluded places, and land with the firm conviction that you have at last found a spot where, free from intrusion, you may relieve the monotony of boat-life by a stroll upon the grassy bank—you shall hardly go a rod before your ears will be greeted with the exclamation, *Yang-kweidsz'! Yang-kweidsz'!* (foreign devil) and as if by magic you will be surrounded by the grinning faces and pigtails of inquisitive Chinamen.

On the 19th of July we moored our craft to the wharf at Hankau, and ended our journey on the upper Yangtz'. Mr. Cox, to whose companionship I was indebted for the successful issue of the journey, and much of the pleasure, returned to his missionary work, while I prepared to leave for Shanghai by the first steamer.

I have kept, through the half-century since that parting, an affectionate remembrance of Josiah Cox. He was the first missionary with whom I had come into intimate contact, and he was one of the few able missionaries who had kept steadily at work in the pulpit; for as a rule I think the strongest men devoted their efforts to the language and literature. He was a most agreeable comrade, with an acquaintance with China gained during seventeen years of close contact with the people in different provinces. He told me that although thousands of Chinese had applied to him to be baptized he had never been sure enough of their sincerity to perform the rite—so strong was the temptation of poverty on the part of the Chinaman, and so sacred did Mr. Cox hold the requirements of baptism.

"But my colleagues think differently," he said; "and, as I am without a family, I go before to open the way for others in new fields in the interior."

We met again in London a few years after the Boxer trouble, and, our talk turning that way, I asked Mr. Cox how much the missionaries were to blame in that matter.

"Probably a great deal in different ways," he answered. "The Catholics were the worst, for France had forced the Chinese Government to recognize the bishops as equal in rank and privilege to the Viceroys. The clergy sat with the Chinese magistrate in trying cases between converted and unconverted natives. If a man got into trouble, he felt sure of winning his suit if he became a Christian. The unconverted natives were exasperated at the sight of a priest riding in the same state as the Viceroy, and they were infuriated against a religion that seemed to set a premium on fraud and hypocrisy. As for the Protestants' share, it consisted largely in the fact that they were Christians, but also in the general antagonism to a religion that tries to destroy the worship of ancestors—the foundation of Chinese society."

"Isn't much harm done by men not fit to be sent out as missionaries?" I asked.

"Yes, but less now," he answered. "I always dreaded having to give up my pulpit to a visiting missionary. I made a practice of taking my text from Confucius. This kept a sympathetic relation between me and my congregation. One Sunday I had to yield the pulpit to a visitor. As he went on in his sermon, I became very uneasy. When he came to sum up, he said, 'And now the Lord Jesus Christ is sitting in glory everlasting on the right hand of God Almighty;—and where is now your Confucius?—

"*'HE—IS—BURNING—IN—HELL!'* "

CHAPTER XXIX

PEKING

I INTENDED to sail for India on a P. & O. steamer. Mr. and Mrs. Edward Cunningham kindly invited me to make their house my home in the meantime. I found the foreign society very interesting. The experience was also interesting in other ways, and also instructive as regards both the natives and the foreigners and their relations to each other.

The European and American merchants still controlled the foreign commerce, and the great houses made large profits. There were also great Chinese merchants with a high standard of commercial honor both among themselves and with the foreigner; the word of each was held to be as good as a bond. The foreign houses bought Chinese products by samples, and the goods had the qualities of the samples.

The real business was done by a Chinese employee—the comprador. He had the whole charge of the money, and did all the buying of native goods and selling of foreign ones. It was tacitly understood that the comprador received a commission from the Chinese seller or buyer, but this was a small fixed percentage, and it was well known that he bought and sold much more advantageously than the foreigner could.

The commission, though never mentioned, was a regular matter of business, and in accord with the really high standard of commercial honor, and was not a theft as it would be with us. The comprador got rich; but the foreign houses also flourished.

Back of this commercial standard was the great moral check on which was based the whole politicial, social, and domestic organization of China—the reverence of ancestors. The individual was responsible for the family honor, the family was responsible to the clan and to the village. The son would face death rather than disgrace the family and the ancestors. Life insurance companies refused insurance to Chinamen, because beneficiaries would commit suicide in order that the insurance might save the parents from poverty.

Cholera was still raging and was now attacking foreigners. Many precautions were taken by my host and his family and all of us thought ourselves safe. One evening as I was playing billiards with Mr. Loring Cunningham—brother of my host—I felt some pain, and remarked that I hoped I wasn't going to have cholera.

Cunningham rested his cue on the floor and said:

"Nonsense! You're all right. I've been exposed here all summer, and I never felt better than now."

In the morning, at daybreak, Dr. Simmons waked me—we had been friends in Japan.

"I want help," he said. "I was called to see the butler, and found him dying. I went to Loring Cunningham's room for help, and found him in collapse."

Poor Cunningham was too far gone to recognize us. The doctor gave me the necessary instructions, and came back often during the day. It was awful. Death I had often seen, but not this phase of dying. Poor, gentle Cunningham! He died as I was lifting him, at five that afternoon. When it was all over I thought how infinitely preferable to this was the sudden death of Grosvenor.

I was still much run down as a sequel to the fever on the upper Yangtz'. So I was not surprised when, as soon as Dr. Simmons came in after our friend had died, he made me go to bed, and examined me.

"You're not in a fit condition to go south," he said.

"There's a steamer sailing to-morrow to Tien-tsin. You get out of here quick, and go north, or I won't answer for your life."

The next day I was taking in deep draughts of the sea air. I believe Simmons saved my life.

So after a sojourn of half a month in Shanghai I had embarked on a steamer for Tien-tsin, the port of Peking, and in due time sighted the low coast of the Gulf of Pechili, and the mouth of the Pei-ho. As we entered this river we passed the scene of the terrible slaughter of English troops that led to the war of 1860. In landing the soldiers got stuck in the mud flat while exposed to the fire from the shore.

The most comfortable route to the capital was by boat, but as this involved a four-day journey, and the land route less than three, I joined M. Garnier, a French gentleman, who was going by the road. Our baggage went in two-wheeled carts drawn by mules, while we were mounted on strong Tartar ponies. The journey was not a very interesting one, as the road lay over the broad plain of Chih-li. It was already the beginning of September. The crops were just ready to be cut, and our way was hemmed in on either side by broad, cultivated fields gilded by the drooping ears of millet, or reddened by the ripening *kao-liang,* a variety of sorghum which grows to the height of eight or more feet. While millet here takes the place of rice as food for the people, the grain of the *kao-liang* replaces rice as a source from which the alcoholic drink of the Chinese is distilled, and is also largely used for fodder. Many fields were planted with buckwheat, and others with cotton.

Although we passed many large farmhouses, well built of brick and roofed with glazed tiles, and surrounded with large inclosures, the greater part of the villages and isolated houses bore the marks of poverty, being built of mud, and thatched with reeds and straw.

Where the crops had been removed, the surface was a sandy plain, dried by the summer's sun, and sending up clouds of dust with every gust of wind. The soil is impregnated with alkaline salts, which effloresce on the surface, and render the fine sand extremely irritating to the eyes. On this great plain sandstorms often rage with all the fierceness and destructive consequences which one is accustomed to look for only on deserts. Only a year or two before my visit to northern China one of these storms had prevailed for several days, and with so much intensity that the air was darkened, boats were unable to move on the river, and many people died from losing their way even in this thickly peopled region. In Tien-tsin the sand fell many inches deep in the courts of houses, and fine particles were said to have even filtered through the paper of windows.

A lofty pagoda, towering high over village and plain, showed us that we were nearing Tung-chau (fu), twelve miles from Peking. The Pei-ho here receives a canal, which connects its waters and those of the grand canal with the capital of the Empire.

Here we came upon one of the granite causeways, or highways, which radiate from the capital. The road was perhaps eighteen feet wide, and was of granite blocks about six feet long by two feet thick. This massive covering was laid upon a thick and perfectly graded bed of concrete and cement. These roads were constructed for durability, and exhibit a great degree of skill; for, although they have probably never been repaired, the stones have undergone no movement from their original position. But a defect in construction, combined with the wear of long use, had made them now almost worthless. The slabs were laid with the longest axis across the road, and in such a manner that the end joints formed by each two slabs fell half-way between the end joints and the neighboring stones. These end joints, being the weakest points, have, through long exposure to the tires of cart wheels, been worn into deep ruts as long as the slabs are broad. It was driving over this very causeway in a Chinese cart that hastened the death of one of the gentlemen who accompanied Mr. Ward in the embassy to Peking. Had these roads been built of slabs sufficiently long to leave the end joints always in the middle of the highway, they would certainly have been masterpieces of the art of road-making.

Suburban villages with innumerable hostelries concealed the walls of the city until we were almost under them. A large gateway, surmounted by an imposing tower and protected by a semicircular curtain wall which in its turn was pierced by three portals, stood before us. Through this we were allowed to pass, after a close examination of our passports by the officer of the guard, and we rode into Khan-balu, the city of the Khans.

It was no easy undertaking for a stranger to find his way to any given point through a city so subdivided by inner walls as is Peking. It was to this very difficulty that a foreign Minister owed a diplomatic success. The Danish Government, wishing to make a treaty with the Chinese, had sent Count Rasseloff as plenipotentiary. But the Government, not wishing to enter into any new treaties, declined to receive the Minister. This gentleman, however, having reached Tien-tsin, determined to push on to the capital, where, arriving some time before his retinue, he entered the gate alone, and not speaking the language, soon lost his way. After wandering about for a long time, and trying in vain by gestures to learn from the astonished natives the whereabouts of the foreign legations, he rode up to a well-dressed Chinaman who was just leaving a house. After several ineffectual attempts to establish an understanding the Chinaman good-humoredly got out of his carriage, and led the foreigner into a room where he found several other Chinese gentlemen. An interpreter was soon found, and refreshments were brought in. After a good deal of sociable conversation, the Ambassador found that his guide was one of the high officers of the Empire, and that he was then present at a meeting of the Board for Foreign Affairs—the authorities who had declined making a treaty—and at the same time the officials discovered that they were entertaining the very man whose entrance into the city they had endeavored to prevent. The accident led to a hearty laugh all round, and to a good understanding, which resulted in the speedy consummation of a treaty.

After quartering ourselves in a Chinese inn I made my way to the American legation, where I met with a kind reception from our Minister, and received, both from him and from Mrs. Burlingame, an invitation to stop with them during my visit. It is from this time on that I date my real travels in China, at least so far as traveling means a study of the people. During this visit, which was prolonged many months beyond my original intention, I learned to free myself from the prejudices which every traveler is apt to contract upon the China coast, and during my subsequent travels to look upon the people, with whom I was thrown much in contact, from a different standpoint. For the ability to do this I have to acknowledge my deep indebtedness to Mr. Burlingame, and to Sir Frederick Bruce. The broad-minded policy of these two men, based upon justice, and freed from prejudice of race, had begun a new era in the history of Eastern diplomacy.

Peking was founded by Kublai-Khan, about A.D. 1282, as the seat of his court. It is said to have been built near the site of an important town which dated from the Chow dynasty (1122 to 256 B.C.). The inclosure is about twenty miles in circumference, and is divided into two parts, the Chinese and Manchu cities. The walls were built with solid core of earth, faced with massive brick masonry, resting on a solid foundation of stone upon concrete. The top is paved with tiles, and defended by a crenulated parapet. Each of the sixteen gateways that pierce the walls is surmounted by an imposing tower several stories high, and rising apparently more than a hundred feet from the ground. Within the Tartar City, and

MR. AND MRS. ANSON BURLINGAME AND DAUGHTER AT PEKING, 1863

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occupying the heart of it, there is a walled inclosure called the Imperial City with palaces and pleasure grounds.

Unlike most other Chinese towns, Peking, except the inner (Imperial) city, is traversed by broad avenues crossing the city in both directions in straight lines. A stream entering near the northwest corner of the Tartar City is divided into two branches, which, entering the Imperial City, surround the forbidden inclosures with canals and lakes; and then, reuniting, the waters pass through the southern part of the Tartar City and the Chinese town, into the Tung-chau Canal.

Upon the west bank of this stream, in the southern part of the Tartar City, were the American, English, and Russian legations.

The top of the wall formed the principal promenade for the few foreign residents. From it one had a good general view over the city as I saw it. To get to the wall we went along an esplanade bordering the nearly dry bed of what was once a beautiful canal, but its marble facing was now dilapidated and scattered in large blocks over the mud. Beyond the street, on the other side, a high wall inclosed the large pleasure grounds and shady groves of a prince of the Imperial blood. We could often see ladies of His Highness' harem peeping shyly over the broken parapet. We wondered whether these life-long prisoners felt more of contempt or of envy for the lot of foreign ladies, when they saw them walking in public, or riding on horseback, with all the freedom which the Chinese were taught belongs only to men. It was not often that a foreigner of the male sex got a near sight of the ladies of this class, except when they passed in carriages. Still, there was one instance in which a dashing young foreigner played the part of Don Juan in one of these harems, though without meeting the fate of Byron's hero. Crossing over a white marble bridge, and following the dirty street which borders the canal, we left the water-course and by an easy ascent reached the top of the wall that separates the Manchu and Tartar cities. From here, looking north over the Tartar town, we saw little more than a broad forest, above which rose on every side the lofty towers of the gates, and the high roofs of the palaces and temples. Excepting the houses just beneath us, the private dwellings were hidden among trees. Strolling westward on the beautiful promenade, now almost green with the grass springing up between the tiles, we came into the shadow of the great tower over the middle gate.

Beneath this lies the Meridian Avenue, which, running due south through the middle of both cities, connects the Imperial precincts with the temples of Heaven and of Agriculture. Immediately below us a busy throng of Chinamen was pouring in and out of the gate, with all the motley variety of an Oriental population. A large square, paved and surrounded with an open marble fence, was bordered on the north by the red wall and lofty vermilion gateway through which the Meridian Avenue enters the Imperial City. Colossal lions of white marble guard the entrance to this somber gate. Beyond this, in the Imperial City, rises a succession of high buildings, one behind the other, on the line of the avenue, the yellow tiles of the roofs shining like gold in the sunlight, and contrasting strongly with the dark green of the foliage out of which they spring. To the north, and conspicuous above the intervening palaces, we saw the "golden mountain," a beautiful hill, having several summits, each crowned with a picturesque pavilion. This feature in the scenery is said to be artificial, and to contain a vast store of stone coal. History records that the last Emperor of the Mings, finding his cause hopeless, and the capital falling into the hands of the rebel Li-tsz-ching, retired to this mountain, and there ended his dynasty by stabbing his daughter and hanging himself.

Further on, in the northern part of the city, a massive building stands high above the trees. This is the great watch-tower; in one of its upper stories are kept the giant drum of Peking and the great bell that weighs six tons. On our left, near the western wall of the Tartar City, is a monument, an Indian *tope* of white marble; while further west, in the suburbs, stands one of the loftiest and most beautiful pagodas in China.

To the west, over some ten or twelve miles of intervening country, arise the barren mountains which form the western limit of the great delta plain, and the transition from the lowlands of the coast to the elevated plateau of Central Asia.

In those days we would turn southward and see the Meridian Avenue emerging from the gateway beneath us, dividing the Chinese town into two equal parts in its southerly course. For a mile or so this broad street is bordered on either side by the principal shops and market places. Beyond these, entering a large open space, it passes between two great inclosures, one containing the temple of Agriculture, in the other, high above the trees, rises the triple roof of the temple of Heaven, covered with tiles of the deepest azure, and surmounted with a golden ball. The rays of the afternoon sun, falling on this brilliant surface, produce a rich purple sheen, a beautiful play of light, the sight of which was in itself sufficient inducement for the daily walk upon the wall.

As the sun is just going down behind the ragged peaks of the west, the wall is darkened for half a mile by the lengthening shadow of the tower above us, and a flood of golden light lingers on the yellow roofs of the Imperial palaces.

The life of a foreigner in Peking was relieved of much of its monotony by the many objects of interest situated within a day's journey on horseback. The Chinese used horses but little, preferring saddle mules, of which they had, I think, the finest in the world, or the two-wheeled vehicles of the country drawn by the same animals. To most foreigners these carts without springs were almost useless, as it required long experience to be able to balance one's body, even in traveling through the streets of the city, without being bruised to soreness by the jolting. At many of the principal points in Peking, there were regular stands, where a number of these carriages might be found waiting, but there was small demand for them by the foreign residents, whose stables contained fine horses from India.

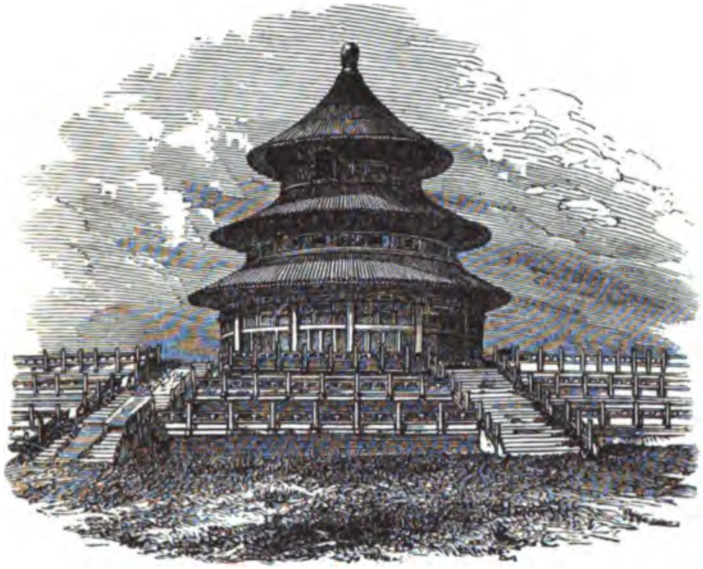
The streets of Peking were full of interest. The broad paved square was all day filled with the hurrying crowd. Common carts and better private ones clattered over the granite flags; hundreds of itinerant peddlers, cooks, and tinkers trotted in and out through the gate, their burdens hanging upon their shoulders at either end of an elastic pole. Well-dressed and thrifty shopkeepers sauntered along the sidewalk, fanning their contented faces; scores of beggars, the worst outgrowth of Chinese city life, horrible wretches, relentlessly besieged every passer-by. Once we met a party, a party of horsemen, dressed in yellow robes, and mounted on Tartar ponies. They were princes of the Imperial blood. A common sight was a long train of camels carrying coal. Stepping with caution on the smooth stones, the animals moved slowly along, lazily chewing the cud, and swaying their long necks and horizontal heads first to one side and then to the other, and fixing their beautiful eyes upon every object they passed. And there were often mangy dogs, and worse looking pigs, fighting over a heap of offal. These are the scavengers of China.

To reach the Chinese city we had to go through the Meridian gate, in which swung massive folding doors, these were closed at dark, and opened at daybreak, amid much sounding of gongs. Leaving this portal we entered a large semicircular space, surrounded by the curtain-wall which defends this entrance toward the Tartar City. Of the three gates leading out of this space, two are open to the public, while the middle one is unlocked only for the Emperor.

In the Chinese city along the foot of this wall there runs a canal. Flocks of ducks abounded on it. They belonged to the dwellers on the bank. Cords stretched on the surface of the water marked the dividing line between the flocks of neighbors—and the ducks were so well trained that they kept strictly within the fixed bounds. Moreover, they were taught to come out of the water and into night quarters at a given signal. As the last one always got a spanking none waited to be the last.

The Meridian Avenue in the Chinese city was paved with granite blocks, which had become smooth and rounded and filled with ruts through the long wear of cart wheels. On either side were, as already said, the shops and booths which formed the chief market place of Peking. During the winter months this city had no rival in the world in the abundance and variety of the game and domestic meat with which its market was stocked. Being near Mongolia, it received large quantities of good beef, and of the broad-tailed and common sheep. During the winter long camel trains were constantly arriving, loaded with antelopes, two or three kinds of deer, wild boars, and wild ducks. Bears, sturgeon, and blue fish were brought in from Manchuria, while the surrounding country furnished an abundance of pheasants, quails, ducks, partridges, and snipe. As the thermometer stands low during the whole winter, these things could be easily preserved for months. The variety of vegetables and fruits was also very respectable, and foreigners had no cause to complain of either the character or cost of food in this part of China.

'A ride of a mile or more brought us to a marble bridge, over which the Meridian Avenue crosses a creek to enter the open plain between the Temples of Heaven and of Agriculture. Here leaving the avenue, we could canter over the turf to a gateway in the inclosure sacred to Heaven. Strictly speaking, no one was allowed to enter these precincts; but foreigners having done so immediately after the surrender of Peking, established a precedent which, with the aid of a small fee, continued to secure them the privilege. The outer wall of the temple grounds is some three or four miles in circumference. Within this a broad belt of groves and lawns, with shaded avenues, surrounds an inner wall. At the gate of this inner inclosure we used to leave our horses and proceed on foot through a park. Then the great temple rose before us. There, high above the trees, showed the azure triple roof, brilliant as a sapphire in the sunlight. The structure stands upon three polygonal terraced stages. Each one is surrounded by a balustrade; on them stand many large and beautiful bronze vases for burning incense. The whole is built of pure white marble, highly sculptured, and covered



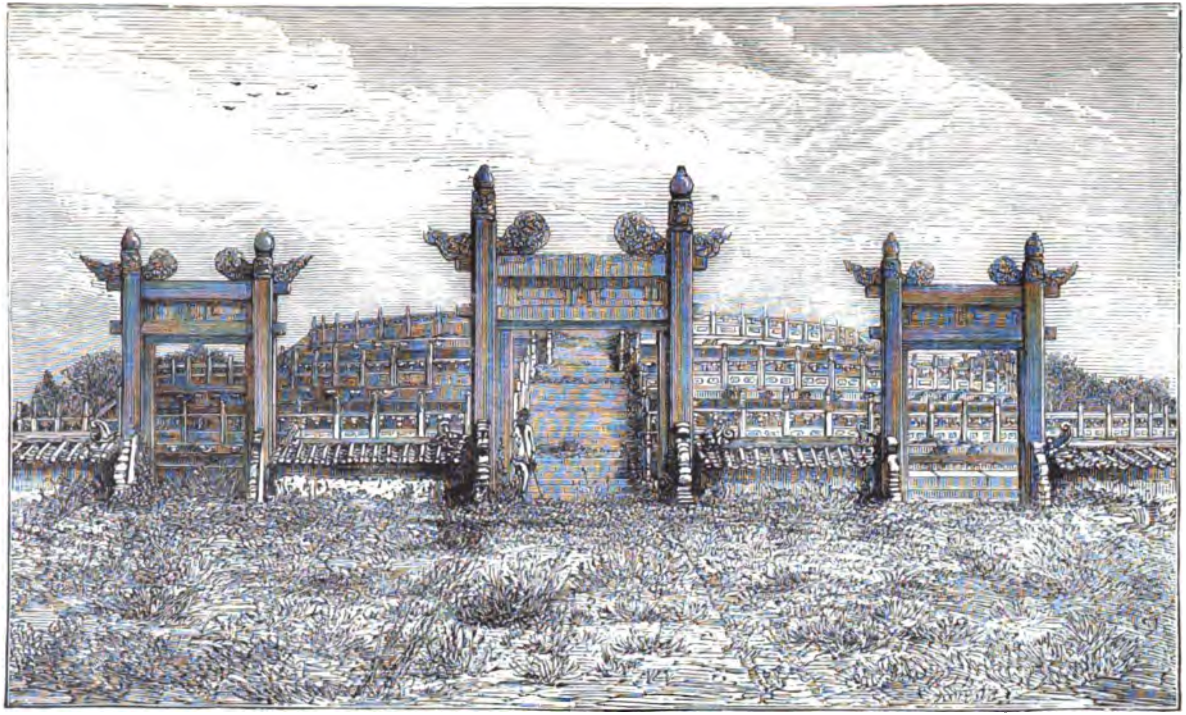
TEMPLE OF HEAVEN AT PEKING

with bas-reliefs, representing dragons and other animals of early Chinese mythology. From each of the four points of the compass the terraces are ascended by broad inclined planes, constructed with massive and sculptured slabs of marble. Upon this really grand substructure stands the temple, a circular wooden building, painted vermilion and pierced with lofty windows. These openings are curtained with rolling screens, made of rods of blue glass, which shut out all view of the interior. Over the main entrance is a tablet inscribed with the name of Shangte, the Most High Ruler.

A broad causeway leading southward, and passing through an arched gateway in a high red building, and under several elaborate arches, connects the temple with the Altar to Heaven. This, like the terraced substructure of the temple, is built of white marble, and has also three terraced stages, the upper one of which is sixty feet in diameter, the lower two ninety and one hundred and twenty feet. It is covered with richly-sculptured figures of mythical animals, while the terraces are decorated with large incense vases of bronze, whose dark color and graceful outlines stand in beautiful relief against the white marble background. In the middle of the top platform three altars or small tripod tables are ranged in a line from east to west, while on one side a large iron basket seems intended for use in offering burnt sacrifices. On the south side stands a sacred gateway, also of white marble.

There can be but one Temple of Heaven, and the Emperor, the High Priest—Son of Heaven—alone has the right to worship Shang-te.

I never entered this spot without being impressed with the sentiment which ever attaches to the contemplation of those things which bear the stamp of great antiquity, and are hidden behind the veil of mystery. Under no other temple than the broad universe, this imposing altar—imposing in its



Altar to Heaven

simplicity—the only symbol of a religion which, unchanged by later corruptions, dates back beyond the dawn of history—is erected to a deity, or perhaps it were more proper to say, to an idea which has never been personified in the Chinese mind, and still less represented to the senses.

The worship of Shang-te (Tien), the controlling power of the universe, was associated in the earliest times enlightened by history with the worship of the spirits of the hills and rivers. This belief in a governing power in heaven, whether it exists now or is discarded, pervaded the early writings of China. It is recorded that music was invented for the praise of Shang-te. Rival claimants to the throne appealed to Shang-te. He is the arbiter of nations. He is both benevolent and capable of being moved to wrath. In the "Book of Odes," composed mostly from 800-1000 B.C., and in part much earlier, Shang-te is spoken of as seated on a lofty throne, while the spirits of the good "walk up and down on his right and left." Shang-te is said to have "no voice or odor"—to be *le*—i.e., a principle of Nature. Mr. Martin observes that there is less anthropomorphism in the representations of Shang-te than in those of Jehovah in the Hebrew scriptures. The source of this worship is probably the same as that of the worship of ancestors, which is so deeply rooted that the lapse of ages, national and family vicissitudes, and exotic religions have been powerless to impair its vitality. Indeed, so closely is this popular faith bound up with everything that is best in the morals and customs of the nation and of its individuals, that it should seem that its abolition must be accompanied by moral anarchy.

On the other side of the Meridian Avenue there is the Temple of Agriculture, surrounded by extensive grounds. Here, in the spring, the Emperor performs the ceremony of plowing the ground with a golden plow—a ceremony said to have been performed also by the Incas of Peru.

One of the most fertile sources of amusement to the stranger in Peking was the walk through the streets in which were collected the curiosity stores and lapidary shops. The latter occupied a long street parallel to the Meridian Avenue in the Chinese city. Here I was in the habit of passing hours in examining the countless varieties of carvings in precious and semiprecious stones. The most common articles were snuff vials, and mouthpieces for pipes, carved chiefly out of green and white jade and *fei-tsui,* a stone precious among the Chinese, and named jadeite by a French chemist. Wonderful ingenuity and patience were shown in the carving. The snuff bottles were generally oval. The mouth was a little over an eighth of an inch in diameter, and retained this size to the depth of about half an inch. Below this the bottle was hollowed out. The whole was polished inside and out. I have seen bottles thus executed in the hardest materials, in rock-crystal, aquamarine, topaz, and even in sapphire, a stone next to the diamond in hardness.

The showcases in these shops were filled with ornaments, in which all the precious stones known to us were represented, excepting only the diamond, emerald, and opal. The emerald was well known to the Chinese under the name of *lieu-pau-shi* (green precious stone), but they also call it *tsu-ma-lu*—the Chinese name of Sumatra. The Chinese simply polish the natural surface of a precious stone. The art of cutting precious stones into symmetrical shapes with facets seems never to have been practised by them.

Among the larger ornamental works in stone, vases in jade, jasper, and rock-crystal were the most prominent. But the finer specimens of these large productions were very rare. Choice pearls and fine rose coral were also found in these shops. Nor must I forget to mention a kind of jewelry peculiar to the Chinese, in which the most delicate part of the plumage of the kingfisher is so laid upon gold as to produce the effect of a brilliant enamel, even under close examination.

Not far from this street was that which contains the principal curiosity shops. Here the collector wandered bewildered among the profusion of treasures. Piles of porcelain vases of every shape surrounded him, dating from the late Tching and from the Ming and older dynasties. Objects in bronze, and beautiful cloisonné vases, the spoils of ruined temples and palaces, *étagères* of heavily-carved vermilion lacquer ware, loaded with vases, and ornamental carvings in jade, agate, and coral; piles of swords, in the ornamentation of which the antiquarian would read many an interesting history; these were some of the treasures which tempted even the most economical travelers to extravagance. Nor were the prices at all modest. Five hundred to two thousand dollars was by no means an uncommon price for porcelain and cloisonné vases, in which beauty and moderate age were combined. It was only the productions of the present day that were cheap.

Not far away was the booksellers' quarter, the paradise of the Chinese scholar, and of the foreign Sinologue. The extent of Chinese literature is very great, and the number of works which are really monumental, is large. Among these we may mention the dictionary of the Chinese language, in one hundred and thirty thick volumes, which, according to S. W. Williams, was compiled during eight years' labor, by seventy-six scholars, with the assistance of *literati* in all parts of the Empire, and under the supervision of the Emperor Kang-hi; the Statutes of the reigning dynasty in more than one thousand volumes, and many other works historical and scientific, containing each several hundred volumes. The "General Geography of the Chinese Empire," under the recent dynasty, contains two hundred and sixty volumes, descriptive and statistical, with a valuable collection of maps received his title *Duc-de-Palikao,* from the name of the bridge at which he had defeated the Chinese.

The English General, in speaking of this campaign against the Government, paid a high tribute to the efficiency of the Mongolian cavalry that opposed the advance of the foreign troops.

The second story was told me in Peking by Mr., now Sir, Frederick St. John. During the raid on the Summer Palace a young officer with a French name, though I think he was an English lieutenant, wandering through the extensive grounds, came to a lake. On an island in this there was a pavilion. Seeing a boat moored to the shore he crossed over, and entering found himself in a large room in which the only furniture was a series of divans along the walls. While he stood admiring the beautiful Oriental decorations and hangings, he became aware of a slight, continuous noise like suppressed breathing. It seemed to come from a divan. Turning one of these over he found a young and gorgeously dressed lady, who threw herself on her knees and with her forehead on the floor begged for mercy. From under the other divans there came forth other ladies, seventeen in all. They were all young, they were all beautiful, they were all richly clothed, and they were in extreme terror. With their faces to the floor they begged for life. What a scene for an *opera bouffe!*

Fortunately the young lieutenant grasped both the pathos and the seriousness of the situation. These ladies, perhaps the favorites of the Emperor, had been abandoned in the mad flight of the court, and left to a terrible fate.

The officer at once arranged for transportation, and sent them with an escort to rejoin the Emperor at Jehol in Manchuria.

The third story was also told me in Peking. A young English officer, in wandering through the grounds, entered a small Buddhist temple. On shelves there were thousands of small yellow metal Buddhas. It may perhaps have been the shrine of the "Ten Thousand Buddhas." Carrying one of these as a souvenir, he returned to the troops. One of his Sikh soldiers told him that the image was solid gold. He told the commander, but was not allowed to go back for more.

CHAPTER XXX

THE CAVERN NEAR FANGSHAN

IN the limestone mountains, about two days ride southward from Peking, there is a cave celebrated for its extent, its sacred character, and for the wildness of the scenery in which it is situated. On a fine September morning a party, consisting of Dr. S. W. Williams, Rev. Mr. Blodgett, and myself, started on an excursion to it. Leaving the city by one of the southwestern gates, we soon came into the open country on a broad cultivated plain. The tall *kao-liang* had been harvested, leaving the view open as far as the eye could reach. Groups of houses, barns, and villages were everywhere in sight. Here and there the eye could detect, in the distance, the gray outlines of walled towns, while, rising above all, the most conspicuous and picturesque, were lofty pagodas, the silent and ancient guardians of the mysterious currents of the air and earth, which are supposed to exercise a potent influence upon the well-being of the country. Away to the south two of these towers, standing in close proximity, rise above the horizon from the city of Tsochau.

This portion of China, lying in the region of prevailing westerly winds, which deposit their moisture on the higher parts of the continent, is favored with an atmosphere so dry and clear that distant objects are defined with a distinctness rarely found in regions so near to the sea. Through this transparent air we could see with wonderful clearness all the details of gorges and cliffs, of spurs and peaks, and of range rising behind range of the great mountain region which, trending away to the southwest and the northeast, borders the great plain, and forms, through its valleys, the stairway to the high table-lands of Central Asia.

The road we were following is one of the chief and most ancient highways of the Empire. Passing through Shansi and Sz'chuen, it forms the land route to Thibet and India. In its course it passes over high mountains, spanning deep gorges with suspension bridges, or with arched structures, and winding along precipices where the roadway had to be cut through the solid rock. It was along this route that Marco Polo traveled on one of his journeys when sent as Ambassador by Kublai-Khan. Before reaching our resting-place for the night, we passed the first object mentioned by the Venetian traveler—the bridge of Liu-kiu-chao, over the Huen River—or, as he calls it, the Puli-san-gan. This structure is built with many arches, and entirely of marble and hewn granite. It has undergone many changes during the six centuries which have passed since Marco Polo rode over it; but the marble parapet, with its posts surmounted by lions, still remains as a voucher for his story.

This highway, leading from Peking to the west, like the one approaching the city from Tung-chau, is paved with granite slabs. Worn smooth, and cut up with deep ruts, it has long since sunk into disuse, and in places lies buried beneath drifts of sand.

During this excursion, as indeed everywhere in the neighborhood of Peking, I saw many private cemeteries of wealthy Chinese families. They generally consist of a somber closed building, surrounded by groves of cypress. In the center of the grove are grouped the tumuli, in which are buried the coffins. These mounds are from five to fifteen feet high, and are well covered with green turf. In many of them there is a profusion of marble monuments, often tablets eight or ten feet high, surmounted with the sculptured dragon, and supported on the back of the giant tortoise, indicating that they were erected by order of the Emperor in commemoration of some great services performed by the deceased. The Imperial decree, with its date, is neatly inscribed upon the face of the tablet.

To these burial-places there is generally attached a certain amount of land, the revenue from which is devoted to the maintenance of the grounds. Some families have founded large Buddhist monasteries, the monks of which hold their fee on condition of keeping the place in order. Hundreds of these cemeteries are scattered around the environs of the capital. In their various states of preservation are recorded the fortunes of many a family, for the first duty of a Chinaman, after that which he owes to living parents, is the respect which he is enjoined to show to the ashes of his ancestors. Undoubtedly the many ruined places of the dead, where nothing is now visible but fallen and half-buried monuments, are still perfect in the memories and traditions of scattered families whose wealth has long since departed. Some successful descendant of the neglected dead may be now reaping in California or Australia the fortune which will enable him to fulfil his family duty by restoring the ancestral monuments.

Toward sunset we passed through the gate of Leang-hiang, and soon found ourselves in the court of the principal caravansary. This was a large square, approached through a high gateway, and surrounded by a one-story building. The kitchen, filled with busy cooks and hungry travelers, stood at the entrance to the court, and as we entered formed a center of attraction to a group of ragged beggars. After a supper of cakes fried in oil, boiled rice, mutton, and fried eggs, our servants unrolled our bedding, and we went to sleep.

The next day brought us to Fangshan, a walled town at the foot of the mountains. Leaving this place after a noon dinner, we crossed a granite ridge and passed through a region of low but rough hills. The road was paved with large blocks of stone, which had become so smooth that it was impossible to ride, and even difficult to walk and lead one's horse.

Passing through a small village, I knocked at the door of a miserable house, and asked for water to drink. The poor inmates brought me hot tea, not understanding how any one could wish to take into his stomach anything so insipid as cold water. When I offered a small amount in payment they seemed almost offended, and I learned thenceforth to credit even the poor mountaineers of utilitarian China with some of the delicate sentiments of Western life.

Toward evening we reached a small village, where we left our horses, and hired donkeys to take us to the cave. It was already dark when we stood knocking at the gate of the great monastery where we were to pass the night. The monks showed us to one of the best rooms, and our servants set out in search of the kitchen, where they were permitted to cook the fowls which we had taken the precaution to bring. This was a large monastery, full of rambling cloisters, surrounding courts and temples. When we went to sleep the distant sound of the low chant at vespers had not yet ceased, and the morning prayer indistinctly greeted our ears when we awoke.

After an early breakfast we set out on foot, and a long walk brought us to the entrance of the cavern. This is on the side of a precipitous hill, and high above the bottom of the valley. Near the mouth there stands a shrine and a marble tablet, erected by the Emperor Kang-hi, the second of the present dynasty.

Taking guides and torches we entered a long, tunnel-like passage, and proceeding a short distance came to a large bas-relief of Buddha, sculptured in the wall. It represents the great sage, either in the state of meditation or of absorption in the Nirvana. In all Buddhist countries many, if not all, caves are held sacred, and in many the shadow of Buddha is supposed to be visible to those who, by leading holy lives, have so mortified the flesh as to be able to see things spiritual. We soon entered an immense chamber, the further end of which communicated by a small passage of tubular shape with the next in the series. Entering at first on hands and knees, we came to a place where the passage was so small that the only way to pass, unless one were lean, was by lying flat and straight, and being pushed at the feet by a guide. The most portly member of our party very fortunately took his turn last. Unhappily for him, although a pious man, he had not sufficiently mortified his flesh to be able to penetrate to the inner mysteries of this holy place. After vain efforts we were forced to leave him wedged tight, literally stuck, with a guide tugging at each end to back him out.

The second chamber is very large, and ornamented with stalactites to an extent which well repaid the trouble we had passed through. In the center there arises a large dome, upon which stand immense stalagmite pillars, in the grotesque outlines of which devout pilgrims are taught to trace human resemblances. They are called the *rohan,* or saints.

The once brilliant incrustations of this chamber are now blackened by the smoke of torches. A long series of chambers is said to continue far into the mountain; but the exit at the further end of this room had been walled up by command of one of the Emperors, because a party of pilgrims, having strayed beyond the explored regions, had never again been seen.

Retracing our steps we went again through the wire-drawing process, and rejoined Mr. Blodgett in the outer chamber. The connecting passage between the two rooms had been polished to the smoothness of glass by the friction of countless pilgrims who had passed through it. Why had it never been enlarged? Possibly the cave was too sacred.

Taking a more roundabout way on our return, we ascended to the head of the valley, and, crossing the water-shed, came into an exceedingly wild and broken region. The limestone mountains are here cleft to their base by deep gorges, with dashing torrents broken by waterfalls. Along the precipitous walls paths are hewn in the rock, now protected by parapets, now descending from ledge to ledge by long flights of steps cut into the cliffs. This seems to be the very paradise of monks. Monasteries and shrines, apparently centuries old, are scattered in profusion through these wild mountain recesses. They are perched in places seemingly the most inaccessible, crowning overhanging cliffs hundreds of feet high, their walls built up flush with the edge of the precipice, and in situations accessible only by steps hewn in the solid rock. However practical the Chinese in general may be, there is certainly a love of the poetic in Nature among the devotees of Buddhism. It is perhaps from among the imaginative Chinamen that Buddhism recruits its monks. We visited several of these eyrie-like retreats and were everywhere hospitably received, and invited to drink from that unfailing fountain, the overflowing teapot. The sanitary arrangements in these monasteries consisted of a simple, neat earth closet. The idea was probably derived with Buddhism from India.

I think it was on this excursion that I saw an itinerant mending cast-iron pots that had holes—something that had never been successfully attempted in the West.

His equipment was simplicity itself, and all carried on the two ends of a pole on his shoulder. An iron bowl held the charcoal fire and had a hole to receive the nozzle of a cylindrical bellows whose piston was worked by a helper. A block of iron served as anvil. The tinker filed clean the top and bottom surfaces around the hole and placed the vessel on a wet felt laid on a wooden block. In the meantime some iron had been fusing with—I don't remember what—flux, and the mender poured it onto the hole and pressed it down to spread around the upper and lower sides of the pot. Then he hammered it tight. He had neither soldered nor welded, he had simply riveted.

CHAPTER XXXI

ON AN IMPERIAL COMMISSION

I HAD nearly finished the necessary preparations for a journey homeward through Tartary and Siberia, when, at the instance of Sir Frederick Bruce, the Chinese Government requested that I should undertake the examination of some of their principal coal fields. In order to suppress piracy and smuggling, the Government had instructed Mr. Lay, their Inspector-General of Maritime Customs, who was then in England, to purchase and send out a fleet of gunboats, officered and manned by Englishmen. Alarmed at the idea of having to pay from fifteen to twenty dollars a ton for English coal, and knowing that they had themselves large deposits of it, they decided to search for desirable fuel among their own mines.

The arrangements were made over a lunch at the Tsung-li-yamun (Office of Foreign Affairs), with the officers of the Board of Foreign Affairs. The interview, which was very friendly, brought out some curious ideas with regard to geology. Among these was the belief in the growth of coal in abandoned mines: everything was produced by the coäction of *yin* and *yang*, force and matter, the active and passive, the male and female principles in Nature; and where surrounding conditions had once favored the production of coal, why should they not always favor it? But at the same time they objected to extensive mining, on the ground that it would exhaust the store on which future generations would be dependent, an inconsistency in reasoning which they got over by saying that the rate of growth of new coal is not known. Another objection to extensive mining was the danger of litigation from trespass, and one of the officers immediately proceeded to give a long and romantic story of a desperate subterranean battle which had raged for days between the forces of two mines which had suddenly become connected underground, an encounter in which the participants were mutually exterminated.

It was agreed that mandarins, two civil and one military, should go with me. The question having arisen as to how my name could be intelligibly written in Chinese, Tung Ta-jin selected for the first syllable the word Pang as the nearest approach offered by the language, and wrote it for me on a card in a character in which the principal element was the sign for a dragon. Did they think there might be some connection between the intended approach to foreign innovations and the clutches of this terrific monster?

Through the kindness of Sir Frederick Bruce, Mr. Murray, of the English legation, was permitted to accompany me, and much of the success which attended the excursion was due to his excellent knowledge of the Chinese language, as much of the pleasure was due to his genial companionship.

Our first day's journey led us to Yang-fang, a little west of north from Peking, and lying at the foot of the mountains. A few miles before reaching this place we crossed the Sha-ho River, near the city of Chang-ping, by a long bridge of white marble. This, after centuries of use, is still in good preservation, if we except the deep ruts, which here, as everywhere else, have ruined the granite pavements.

At Yang-fang a bold granite spur juts like a headland into the plain. Some ten or fifteen miles beyond, to the northwest, the mountain is cleft by the Nan-kau gorge, commanded by the ancient watch-towers and forts, which form the outposts of the great wall of China.

The next morning, leaving the plain, we began the ascent into the mountains through a valley. Murray and I, as well as Ma, the military mandarin, were mounted on strong Tartar horses, while Wang and Too, the civilians, being more effeminate, were carried in open chairs. Ma was a Mohammedan, and a type of the better class of Chinese soldiers. Easy-going and tolerably frank, he did not hesitate to express his contempt for the effeminacy of the civil mandarins in general, and for those of our party in particular. A few years later after he had risen to be Viceroy of Nanking, one of the highest offices in the Empire, he sent a kind message to me by a mutual acquaintance. Of the two civil mandarins, Wang, the elder, was a tall and well-conditioned man of about fifty, well informed after the Chinese fashion, and with a uniformly pleasant expression, which betokened a really kind heart. On the other hand, Too was a type of the too frequent class of overbearing and "squeezing" mandarin. His voice and manner, always harsh, became positively disagreeable upon the slightest provocation from an inferior.

The valley we were ascending was cut deep into the limestone, and shut in by high and ragged cliffs. A tolerably good road, leading over a low pass, brought us into another valley tributary to the Huen-ho, and after a short descent we drew up at an inn in the mountain hamlet of Tien-kia-kwan.

Before entering the house Too called the landlord to him and treated us to a characteristic scene.

"What have you to eat?" demanded Too.

"Boiled millet and eggs," replied the landlord.

"What do you charge for your eggs?"

"Very little—almost nothing, only six cash apiece," was the reply.

"How dare you call that cheap? You must know that we are no ordinary travelers. The Emperor has bought foreign steamers, and Prince Kung has sent this gentleman to find coal for them; therefore you should let us have the eggs for three cash."

By this time Too had worked himself into a passion, and fairly shrieked his argument into the ears of the host and of the gathered crowd. By this appeal to patriotism he finally succeeded in reducing the price by, in our money, about one-tenth of a cent per egg, making a gain of about two cents on our bill, to be divided among the pockets of our escort.

Although within fifty miles of one of the largest cities of the world, we were in a region where money is little used, nearly all the small transactions of the people being effected by barter of the necessaries of life. The currency of China is very clumsy, the copper coin being so bulky as to render its transportation costly, while the uncoined silver is extremely inconvenient, as it is chopped into small pieces and has to be weighed at every payment, while the scales of sellers and buyers rarely agree, and the legal standards of weight differ several times in the course of a few days' journey. In Peking, besides the ordinary cash, there was a copper coin of which the actual value was less than that stamped upon it. This was useless beyond the walls of the city. Peking also enjoyed an institution which I had supposed formerly was peculiar to the United States, namely, an endless number of wildcat banks issuing paper currency. Their notes were useless out of town, as no one would take them, for fear the bank might have already failed, or that it might suspend before the notes could be presented for payment.

We found the inhabitants of these mountains a simple-hearted and civil people, who were quite free from the dislike of foreigners which prevails among the inhabitants of the South, and for which Europeans and Americans had chiefly themselves to blame. Although every ounce of food that is gained from these barren hills is won by the hardest labor, I saw few signs of suffering among the inhabitants. They are contented with the boiled yellow millet and a few vegetables, with now and then a dish of fried eggs, or a chicken which has passed the prime of life, whatever that period may be in the time allotted to a fowl.

The next day we continued our journey southward, through a deep and narrow valley in the limestone. The high and precipitous walls frequently approached each other so closely that the valley became a gorge. At last we emerged into the more open country of the Huen-ho. Crossing a high spur, around which the river bends, we began our initiation into Chinese mountain paths. Our road now lay for several miles along the steep face of the mountain, and high above the rushing river. The road, paved with porphyry boulders, was almost impassable; the rounded surfaces of the stones had been worn smooth by the daily passage for centuries of long trains of mules loaded with coal. On such a road a false step might plunge both horse and rider into the roaring torrent below.

At Ching-pai-kau we were ferried across the river, and entered the valley of the Chai-tang creek. Here, passing a little mill worked by an overshot wheel, we continued our route under the shade of the willows along the edge of the sluice, till the valley narrowed, and we entered a wild gorge. The limestone cliffs, which at first formed the walls, were succeeded as we went south by towering peaks and steep declivities and side ravines of the great mass of conglomerate, which, overlying the limestone, itself forms the foundation of the coal measures as it does in the Ichang gorge. A few miles' journey brought us in sight of the walls of Chai-tang on one side of the creek, while on the other rose a high, flat-topped hill, with a lofty watch-tower at each end, ancient guardians of the valley.

Soon after our arrival at the inn, we were waited upon by the magistrate of the district, from whom we obtained a full list of the coal mines in the neighborhood.

As I have given detailed accounts and analyses of these coals in *Geological Researches in China, Mongolia, and Japan* (Smithsonian Institution 1867), I will be brief here. There were within a radius of four miles from Chai-tang a large number of openings upon the coal seams. Within this area the coal varied from coking bituminous to pure anthracite. The seam containing the Fu-tau mine averaged about seven feet in thickness, and produced a good steam coal. The Ta-tsau or "great seam," about three miles south of the Fu-tau, consisted of two beds separated by about eight feet of sandstone, and contained an aggregate thickness of forty-eight feet of coal, and was a deposit of good anthracite.

The other mines contain coal of a more bituminous character. Each variety had its distinctive Chinese name, and was mined for some special purpose in the domestic and manufacturing arts. The coking varieties were burned to coke; and at every mine the dust, which with us was thrown away, was mixed with a little clay and molded into cakes of artificial fuel. For many purposes, especially for use in the kitchen, this artificial product was esteemed more highly than when in the natural shape, as the globular form of the cakes admitted a ready draught, while their composition was said to have enabled the consumer to control the rate of burning much better than with any other fuel.

In large cities situated at a distance from the mines, the dust and cinders of coal were briquetted by mixing with the dung of cows and horses, and with clay.

The absence of machinery for draining had prevented the Chinese miners from working very far below water-level, and this point was soon reached. Aside from this, their whole system was so defective that the utmost capacity of production of any one mine in this district was less than two thousand tons a year. The works were entered by an inclined plane, which descended in the coal to less than a hundred feet below water-level, where it communicated with a nearly horizontal gallery, which, extending to the furthest limits of the property, formed the main thoroughfare of the mine. Though unable to work below this level, the Chinese miner literally exhausted the fuel lying above it. By means of using inclined planes connecting the levels, he subdivided the seam into pillars. Ventilation was effected either by air shafts or by a blowing machine, constructed much upon the same principle as our fanning mill for grain. The timbering, which was almost confined to the main level, was very costly, owing to the scarcity of wood. The accumulating water of the mine ran along the bottom level to the foot of the inclined plane. One half the width of this slope was cut out into hollow steps, four or five feet high, in each one of which stood a man armed with a bucket. By these the water was bailed from step to step until it reached the surface. In some mines this work was done entirely by blind men. The manner of raising the coal was not less primitive than the drainage, the bottom level and half the width of the inclined plane being covered with smooth, round sticks, over which the coal was dragged in sleds by coolies. The passages had in time become so low that these men were forced to go on hands and knees, dragging the sled by means of a cord passed around the neck and between the legs. In this manner I crawled nearly three-quarters of a mile into one of these mines, with pads on my knees. The fuel sold at different mines of this district at prices ranging from $1.70 to $2 per ton—2,000 pounds.

Near this place, which is called Ching-shui, there were the ruins of an old furnace, where some years since there were cast large quantities of iron currency. This expedient was adopted by the Government during its financial straits, with the view of making the iron *cash* pass for the same value as those of copper, than which latter, if anything, they were a little smaller. This attempt was a complete failure, and this iron currency still lay stored in immense quantities in one of the old palaces of the Tartar City.

After having finished the examination of the Chai-tang district, I determined to visit the coal fields lying at the edge of the great plain, on the eastern slope of the mountain. When the question was raised as to what route we should take, Too instantly informed us that he had made careful inquiries into the geography of the region, and had found that there was actually only one road leading out of it, namely, the one by which we had come. I had wished to descend the valley of the Huen-ho to the point where it enters the plain, and in spite of Too's geographical investigation, I felt confident that there must be a road of some kind following the course of the river. Calling in the magistrate of the district, and several men who were said to be thoroughly acquainted with the country, I held a council, which I had no doubt would confirm my belief in the existence of the desired road. But no; Too led off with an argument, giving physical and political reasons why no road could either now be or ever have been built in the valley, and he was unanimously sustained by the others. Murray, after a severe cross-examination, elicited the fact that a road had existed some time during the Han dynasty, or later, but that in many places the precipices in the sides of which it had been dug had fallen. But there was no road now; this they were all agreed upon. Close questioning, however, brought out an additional fact, namely, that there was a path, impassable, however, for animals, and attended with greatest danger even for foot passengers. "Good," I said, "we will take that path to-morrow." But we had not yet vanished all the lions that seemed to stand guard over the valley of the Yang-ho. The path, they said, if such it could be called, was very winding, crossing the river from shore to shore, and in places where the bed contained fathomless quicksands. This lion being defeated, a host of fresh ones came to the rescue. There were no inhabitants, and we could get nothing to eat; in places the water was poisonous; there were caverns which hurled out terrific blasts of wind; the river was subject to unaccountable freshets which were liable at any time to fill the gorges, carrying everything before them. When we asked one of the mountaineers how he had gained all this information about a valley which no one could visit, he replied that he knew it from two men who, in going through, had experienced all these horrors; but unfortunately for his testimony, he added that they were both swallowed up by quicksands. I must give credit to Wang and Ma for having taken no part in the argument.

The next morning we returned to the valley of the Huen-ho, which we descended to the point at which we had previously entered it. Here the road forked, and the one which descended the river was certainly larger than the other one by which we had come into the valley from the north. To the intense disgust of Too, I turned into the river road. We soon found that this was in constant use. After going a few miles we came to a point where the river narrowed, and the valley contracted to a gloomy gorge, inclosed between high cliffs of limestone. In the face of the wall the road was hewn into steps, by which it ascended to a point high above the river, from which it again descended by another steep stairway. The route was less than three feet wide, with a vertical cliff on one side, while toward the river it was protected by a parapet about a foot and a half high. It was an ugly place for man or beast; long use had polished the rock till it was as smooth as glass. Having begun the passage on horseback, neither Murray nor myself ventured to dismount, fearing to disturb the horse's balance on the smooth and narrow place. In making the descent my horse went down on his haunches, and I confidently expected that in his struggle to rise he would plunge us both over the parapet and down to the dark mass of waters which were rolling and dashing far beneath us. The strong animal with great caution regained his feet, trembling like a leaf.

I was not surprised when we found a considerable village a little further down, and better yet a comfortable dinner and bed in a region where we had been warned of the absence of people and food. If anything astonished me, it was the long trains of hundreds of mules, heavily laden with coal, which we passed the next day; for it seemed to me impossible that they could go up and down the smooth stairways which we had passed.

During this day's journey we crossed the river once, fording over a bed of beautiful gravel; but although there were neither quicksands, nor terrific winds howling from the bowels of the earth, the road was certainly horrible enough to have been built in the time of the Han, and used ever since without being repaired. The river here keeps near the contact between the limestone and the overlying porphyry conglomerates. In each of these formations the aspect of the valley differs, but in both the scenery is extremely wild.

At the little village of Wang-ping-tsun, where we stopped for the night, Murray and I paid a friendly visit to Wang. Behind all the politeness of the old man, we could perceive that our visit was not well timed. An opium pipe and lamp lying on the table were sufficient explanation of our friend's uneasiness. We had long known that he smoked opium, but the old man had supposed his habit unknown to all but himself. Seeing my looks involuntarily directed to the pipe, he made the common excuse, saying that he sometimes used the drug for relief from pain, but that he neither had contracted the habit, nor should he do so.

When we were seated, Wang told us how a former friend of his, who had once been a magistrate of the place where we then were, had fallen into the habit of using opium; how this habit, gaining on him, had caused him to neglect his official duties, and had transformed a kind-hearted and beloved magistrate into a hated tyrant, extorting from the poor villagers the means to meet the then high price of the drug; how, after being mobbed and driven from his office, he became an outcast, and his family beggars. When Wang finished the story of his friend by saying that in an attack of remorse and despair he had ended life by an overdose of opium, there were tears in the old man's eyes, and I could not help thinking that he was unfolding his own future, so true was his story to the career of almost all who become addicted to this vice.

The next day our road passed over three high ridges, by crossing one of which, the Niu-chau-ling, we avoided a great bend in the river. Having reached the climax of the horrible, in describing roads already mentioned, I have no words left to do justice to this. For a distance of several miles the way over the hill is paved with large irregular blocks of porphyry, the surfaces of which are everywhere rounded and polished. In many places the formerly slight depressions at the point of contact between three or four blocks have been worn into holes several inches deep by the shoes of countless mules, which during centuries have daily packed their heavy loads over this tedious pass.

At San-ki-tien we came upon an arm of the great plain, finishing safely our journey through what Too had caused to be described as the very valley of the shadow of death. The real object of dread on the part of Too was the shortening of the journey, thereby depriving him of the chance to "squeeze" a few dollars in his accounts.

Here we entered the coal field of Mun-ta-kau, which lies in another arm or bay of the great plain, and found that a temple had been prepared for our reception, and that many little things had been done to make our stay comfortable.

The coal of this region was altogether anthracite, and many openings had been made upon the several beds. One mine which I visited had been worked to a horizontal distance of 8,500 feet. The seam was very irregular in thickness, varying from a few inches to six or seven feet. In this mine one man could bring to the surface only about a hundred and thirty-three pounds daily, owing to the great loss of time in dragging the sled a mile and a half on hands and knees. The ventilation was assisted in this mine by a very large fan-blower.

After staying a few days at Mun-ta-kau, I determined to skirt along the edge of the plain to the coal district of Fang-shan. To do this, both mules for the transportation of the baggage, and carriers for the chairs of Wang and Too, were needed. For these a requisition was sent in to the local magistrate, with a request that they might be ready by daylight the next morning. The next day, as we saw no signs of the animals, the magistrate was sent for, but we received word that he was so drunk with opium that it would be some time before he could come. After several hours the officer arrived. He was a young man, a native of Sz'chuen, with a very effeminate and finely chiseled face. Dressed with the most scrupulous care, he was a type of the Chinese exquisite.

He had made arrangements for men and mules the night before, and now sent off his attendants to find out why they had not appeared. The owners pleaded that their animals were employed on permanent contracts, from which they could not remove them without suffering much loss. "But you must fulfil the demands of the Government," replied the officer. "We cannot," answered the men sullenly. "Halloa there, beat these fellows," cried the enraged mandarin. Two executioners with peaked hats immediately stepped forward and forced the men to their knees, while others proceeded to apply a few blows with bamboo rods. In the meantime a considerable crowd had gathered in the temple court, and were beginning to force their way into the temporary hall of justice. "How dare you intrude here," cried the mandarin. "Drive them out! Drive them out!" But the people caring as little for the executioners as for their magistrate, and heeding the words of neither, continued to press in. The crowd grew larger, and it seemed probable that a long-growing dislike of their mandarin was about to find vent in a riot.

Just at this moment the crowd opened in the court, making way for Wang, who approached from our quarters on the other side. Wang had formerly been magistrate at this very place, and the silence which came over the crowd, as well as the deference shown him as he passed, proved that the old man had ruled kindly and well, and that his memory was still held in respect. A few words from Wang put an end to our trouble, and men and animals were immediately forthcoming.

The small valley of Mun-ta-kau opens into a larger area of the great plain, and in the middle of this a rugged hill, rising abruptly from the banks of the Huen-ho, is crowned with the picturesque ruins of the temple of Shi-ching-miao. As in some of the ruined castles of Europe, so here the broken sides and tops of cliffs are filled out with heavy masonry to make a foundation for the building upon the most commanding point. I was told that passages and rooms are hewn out of the sandstone rock, with ponderous doors of stone guarding the entrance to them. The lands belonging to the temple were tilled by people who inhabited less ruined buildings, but probably a small part of the proceeds was devoted to repairs. I was told that this had been the dwelling and temple of a formerly wealthy family.

I remember a curious instance that I saw on this trip of Chinese thrift and competition. The road, for a distance of 100 or 200 yards in each direction from an isolated eating house, had been dug out to form a trench and solidly packed with, I think, millet stalks and earth. As this was the resting and eating place, the drivers stopped there the long trains of mules, and these immediately relieved themselves. The contents of the trench were thus transformed into rich fertilizer. This showed the thrift of the promoter of the trench. He had rivals. The instant the train stopped, boys jumped forward carrying forked sticks and pails. As the mules' tails rose, the boys placed the sticks to keep them up and pails to catch the dung. I couldn't learn how the rights of the public road, the trench owner, and the boys were adjusted, nor how the wily mule was induced to agree.

Proceeding southward, we skirted the foot of the mountains. On our left the great plain stretched away to the eastward. From slight eminences in the road we could see the gate-towers and pagodas of Peking, and the triple roof of the Temple of Heaven. On our right towered a great peak of limestone, with ragged sides and high cliffs. Here on the summit, almost inaccessible, except for stairways hewn in the rock, and perched 1,500 or more feet above the plain, are the cloisters and temples of a Buddhist monastery. The mountain is said to be honeycombed with caves.

After passing limestone quarries that had been worked during centuries we came to Ta-hwei-chang, or great lime depot. The walls had long been crumbling, till little was now left standing. But dilapidated walls in China are not necessarily a sign of decay in population or industry. As we proposed to dine at this place, we rode up to the principal eating house. This was open to the street, and long before our dinner was served the room was crowded with the curious of all ages, anxious to see, for the first time, and not only to see but to feel of, the queer barbarians of the Western seas.

"Go out, boys," said Ma.

Upon this the largest lad in the crowd turned to one a little smaller, and exclaimed:

"Go out, boy—go out. Don't you hear that the *lo-yé* does not want any boys here?"

But this one, passing the injunction to a still smaller neighbor, it was repeated in a descending scale, till a little fellow about two feet high picked up the smallest child in the room and thrust him into the street. This turned the joke against us—always a disadvantage to a foreigner in a Chinese crowd. A traveler who has command of the language, together with patience and sufficient wit to put the more demonstrative members of even a Chinese mob in a ridiculous light, has little to fear, provided the crowd is swayed by no stronger motives than mere curiosity. If, however, he resent the personal annoyance by blows, he places himself in a position of great danger. An instance somewhat illustrative of this occurred to us in leaving Ta-hwei-chang. The whole population of men and boys followed us through the streets. From laughing at each other's jokes made at our expense, they proceeded to open ridicule, and, regardless of our official escort, began to hoot, and finally to throw missiles. Our situation was now very critical, but Murray stopped his horse, and, turning to face the crowd, raised his hand to motion silence.

"O, people of Ta-hwei-chang!" exclaimed Murray in excellent Chinese, "is this your hospitality? Do ye thus observe the injunctions of your sages, that ye shall treat kindly the stranger that is within your gates? Have ye forgotten that your great teacher, Confucius, hath said: 'What I would not that men should do to me, that would I not also do to men?'"

The effect of this exhortation was as remarkable as it was unexpected by me. In an instant the character of the crowd was changed: the hooters and pelters had stopped to hear the barbarian talking in the familiar words of Confucius, the old men bowed approvingly, and a number of boys jumped forward to show us the way. Imagine a Chinaman quoting the Sermon on the Mount to a hooting mob of American men and boys, and the effect.

Before sunset I found myself again in Fangshan, but this time in quarters which had been prepared for us.

Among the principal mines which we visited in this neighborhood were those of Chang-kau-yü, in the mountains, about eight miles west of Fangshan. They belong to the family Chang, one of whose members was decorated with a blue button. We reached this place about noon. It was no slight undertaking to visit one of the mines. After reaching the foot of the inclined plane, I found the gallery so low for a great part of the distance as to be passable only on hands and knees. After creeping a long distance, the proprietor, who I believe had never been so far before in his own mine, gave out, and I continued my way to the end, accompanied only by the head miner. I had little strength left to use in examining the workings, which were conducted in the same manner as those already described. Much timbering was used, though chiefly the wood of fruit trees, etc., which cost at the mine twenty-nine cents per hundred pounds.

It was a source of great wonder to the Chinese, as it had been also to the Japanese, that a person acting under an Imperial commission, with authority to demand the presence of all officials on his route, should subject himself to the hardships which attend a personal examination of a mine.

The sun was setting behind the mountain cliffs when I reached the open air. The owner had prepared an extensive dinner in honor of the occasion. It would perhaps be un-charitable to say that this hospitality was in any way suggested by a desire to have the coal of this mine recommended for the new fleet; but I always had a suspicion that our friend Too, who was very fond of the good things of this life, had suggested the policy of appealing to my good will through the stomach. In vain I urged the lateness of the hour, and the danger of riding over the mountain road by night. Our host insisted that we should stay, and promised a procession of torch-bearers to light the way on our return. The dinner was good, as was also the rice wine, and we talked and laughed and ate and drank until I began to doubt even the ability of the torch-bearers to guide our merry party safely over eight miles of dangerous road. It was nine or ten o'clock before we mounted our horses, and I think that with the prospect before us, even Ma envied Wang and Too the chairs for using which he despised them. With a large number of torchmen, we left the mine and started upon our perilous journey. I have given so many descriptions of bad roads that it is only necessary to say of this that it was nearly equal to the worst. Paved with large and polished blocks, it wound along the side of a rocky ravine, and the danger was increased by frequent stair-like descents. We must have presented a remarkable sight, as our party wound along this road, with flaming torches, which lighted up at every instant some new feature in the wild scenery—now a frowning crag towering above our heads, or again the yawning gorge beneath us, and the rushing torrent and waterfalls at its bottom. A wild sight it was, no doubt, and so too thought the inhabitants of the small hamlets which we passed in the dead of night, for we heard the barricading of doors. So thought also a lone and frightened Chinaman, whom we found shaking with fear, and hidden among some boulders, holding a pig which had betrayed him by its grunting. Everywhere we passed for a band of *Ming-who,* a class of robbers who in town and country make rapid raids in large numbers, and by torchlight.

In the small hours of the morning our remarkable procession reached one of the gates of Fangshan. The gates of Chinese cities are locked at dark, and the keys deposited with the magistrate, and the law prohibits their being opened before daybreak. There was a long parley through the closed portal with the guard on the inside before they could be induced to send word to the Ya-mun that we wished to enter, and it was nothing but the fact that I was traveling under an Imperial commission that caused the gates finally to swing open and admit our weary party.

The next day we received invitations to dine with the magistrate of the city. As we traversed the court of the Ya-mun, at the appointed time, our ears were greeted with a sound of suppressed chattering, and we could see that all the chinks of the surrounding windows were occupied by the ladies of the household. Our host led us into a room where the table was spread. In accordance with Chinese etiquette, he spent some time in persuading each of the guests to take the head of the table, a distinction which each one was bound by the laws of politeness to decline. The host, then standing in that place himself, insisted upon each and all sitting down before him, which, of course, was persistently declined, as it would have been a breach of politeness for a guest to take his seat first. The dinner began with a cup of hot rice wine. The table was loaded with dishes, which were placed one upon another in tiers, forming a pyramid of Chinese delicacies. There were soups made of birds' nests, of the haliotis, and of sharks' fins; there was *beche-de-mer;* there were stews and *patés;* there were roots of the waterlily; but it would take too long to enumerate all the dishes spread before us, each of which one was expected to taste. Great as is the variety of articles of food in the Chinese cuisine, some things which in other countries are considered most essential are missed by the traveler, and of these none more than butter, bread, and milk. There is a kind of bread which is cooked by steam, and there are flour-cakes fried in oil. They are good, but are poor substitutes for good bread. A little milk is sold, and women's milk is peddled round the cities, mostly for the use of invalids. Foreigners are shy of patronizing the Chinese milkmen. There is an old story on the coast that at a dinner given by a foreigner, the host took a servant to task for serving no milk for the coffee.

"Boy go catchee milk," said the gentleman. The servant disappearing, soon returned with the answer: "No have got."

"What for no have got?"

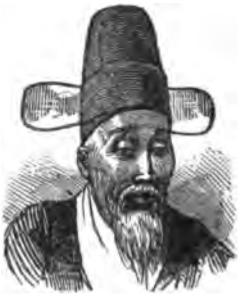
"That sow have got too muchee piecee chilo (children); that woman have die," replied the boy.

The only unpleasant feature about our dinner was the custom of every one helping everybody else, so that I could eat nothing which had not made acquaintance with my neighbor's chop-sticks. The intervals between the courses were occupied in eating the kernels of pumpkin seeds, which are so much used in China that they form an important item in the trade of certain provinces. In peeling these seeds, if in no other way, the long nails of a Chinese exquisite certainly do good service.

Somewhere on this trip I had memorable occasion to learn the alertness of the Tartar ponies. We had to cross a roaring torrent on a bridge barely three feet wide, perhaps fifty feet long and without any guards on the sides. I came last. When my horse had unwillingly got half-way over he stopped and suddenly whirled about face and went back.

The next day we started on our return to Peking. The crops were all harvested, and the tall stalks of the sorghum no longer obstructed the view. Hamlets and farmhouses were scattered far and near; the plain seemed like one vast field, broken only here and there by rows of willow trees, raised for the manufacture of charcoal. At every farmhouse the hard threshing-floor of pounded earth presented a busy scene. Laughing groups of men, women, and children were threshing grain, or tossing it in the air to be winnowed; while others, pushing a long lever, worked the mill which ground it to flour.

As soon as I reached the American legation I learned that the Government, abandoning the idea of organizing a steam navy, had decided to send the flotilla back to England to be sold. This unwelcome news put an end to my hopes of being able to study the coal fields of the more distant parts of the Empire.



THE KOREAN AMBASSADOR

About this time there arrived at Peking the Korean embassy, bringing the annual tribute to the Emperor of China.

Dr. Pogojeff, of the Russian legation, succeeded in taking for me the photographs of several members of the embassy, including the chief Ambassador, whose state costume resembles that of the Chinese court under the Mings. The attendants were dressed in white cotton clothes, padded throughout with cotton batting, and quilted. Their hair was arranged in a knot, secured under a cotton covering; over this they wore broad-brimmed hats of very open horsehair work.

CHAPTER XXXII

ANCESTORS AND VISIONS

It was on some excursion of about this time that I had an uncanny experience. I had arrived after dark at an inn. After eating I was taken by my guide across the court to a room where he had spread my bedding. The light he carried went out in opening the door, and in the dark he led me to the raised platform on which I was to sleep. Awakening in the night out of a deep sleep, and wondering where I was, I stretched out my hand. It touched something that was clearly not a wall for, feeling upward along it, it seemed to be made of enormous logs one above the other. When I awoke in the daylight I saw that I had slept between two piles of the great log coffins used in China. I found out that the innkeeper's family, originally from the North, had lived long in the South, but had for two or three generations been working their way back to the original home. My host was still in this returning process, and, like his forefathers, was carrying with him the accumulated remains of his ancestors.

The foreigners living in Peking at that time formed two groups—the members of the legations in one, the missionaries in the other. The United States were represented by Mr. Burlingame, Great Britain by Sir Frederick Bruce, France by M. Berthemi, Russia by Count Vlangali. Mr. S. Williams, through his great knowledge of the people, their language, history, literature, and land, belonged to both groups, being both a missionary and Secretary of our legation. Without the cordially given aid of Mr. Williams it would have been impossible for me to add to my observations in the field the information contained in extensive literature bearing on the physical geography of the Empire.

To Dr. Lockhart, medical missionary and physician to the British legation, I owe not only many pleasantly instructive hours, but probably my life also.

The four foreign Ministers and the members of their legations formed a small and harmonious social circle, in which during my time Mrs. Burlingame was the only lady. There were rather frequent dinners in which I was included, as guest of our Minister.

The relations between the American and British legations were naturally the more intimate. Sir Frederick Bruce was at least once or twice every day at the Burlingames', where nearly every evening we either had whist or Sir Frederick read aloud from some poet, or there was serious discussion of diplomatic questions by the two chiefs. Sometimes these were in connection with the occasional news from our Civil War, for Sir Frederick was a warm friend of the Northern states and an admirer of Lincoln.

More generally the talk turned to the thought that was uppermost in the minds of both—the establishment of rational relations between foreign powers and China, based on a recognition of the rights of China politically and of the Chinese individually. They wished that England and America should work together both to insure the integrity of the Chinese Empire, and to bring the Government to introduce certain fiscal and other reforms to aid in the same direction.

There were several meetings at Mr. Burlingame's house with the members of the foreign office, and others with Prince Kung, the then Regent, and with Wen-Siang, who was, I think, at the head of foreign affairs. He was looked upon as the equal in ability of any living European statesman.

I was allowed to be present at all these discussions and meetings. Mr. Burlingame and Sir Frederick Bruce said that I was exceptionally fitted to explain the need of a change in policy because of my experience in Japan, my observations in central China, and my official contact with the governing class both at Peking and when traveling on an Imperial commission.

When I left China I was provided with an introduction to President Lincoln in a letter, and with a sealed despatch to Mr. Seward. President Lincoln died before I reached America.

JOURNEY ALONG THE GREAT WALL

My winter had thus far been spent profitably. I had gathered a large amount of data bearing on the geology of northern China, to supplement my observations made in the central part of the Empire. These data showed that the geology of this large region, in the structure and direction of its mountain ranges and in the abundance of coal, resembled that of our Appalachian system. Between these sections remained a great gap. It seemed evident that a bed of limestone several thousand feet thick underlay all of that large part of China, and came to the surface in the folds that formed the mountain ranges.

I wanted, however, to make sure of this generalization, and if possible to learn whether rocks older than this limestone were exposed in these ridges.

Dr. S. Wells Williams had told me that under some of the dynasties there had been taken a census of all the useful resources—vegetable and mineral—of the Empire; and that the locality of each item was fixed as to distance and compass direction from the nearest district town. This excited my interest. I ransacked the lapidary and antiquity shops to get the Chinese names for minerals and rocks, with their written signs.

I knew that certain minerals would generally come from crystalline rocks that would probably be older than the limestone. Then hearing that mineral substances were used as medicines, I examined the contents of drug shops, and found in them a mine of information. There were "dragons' bones" and "dragons' teeth" which clearly meant caves as sources, and caves meant limestone. And best of all, there were "stone swallows" and the stone swallow was a certain spirifer, a fossil that was in Europe and America characteristic of the Devonian or Carboniferous and this also meant limestone.

I turned the lists of Chinese names over to three very scholarly and very garlicky Chinamen chosen for me by members of the foreign office with instructions to read the several hundred census volumes and extract all the references to the things contained in the lists. The result was a big pile of notebooks which were kindly translated for me by my missionary friends. All this was ready for me when I recovered from smallpox.

I used the long period of quarantine during convalescence to digest and plat on a map the results thus obtained. They confirmed my hypothesis as to the distinctive NE-SW course of the mountain system, the continuity of the limestone folds, and the presence of underlying crystalline rocks. But while I had ascribed the spirifer to the Carboniferous limestone, Richthofen, coming later, found that it belonged to a Devonian limestone that underlies the Carboniferous. Aside from this he praised my hypothetical map of China as a general expression of the structure and broad outline of the geology.

A journey made in the beginning of winter to the Great Wall and the confines of Tartary had only served to excite in me a wish to penetrate further into that mysterious and then almost unknown region which occupies the great tableland of Central Asia. My wish was, first to travel as far west as possible upon the plateau, in order to gain some knowledge of the nature of the country, and of the character and habits of the people; and then, after getting a traveling knowledge of the language, to try to reach the Pamirs and the plains and valleys which, lying between the Celestial Mountains and Himalaya, were then supposed to have been in the dawn of human antiquity the cradle-land of our race, though this is now a disputed question.

My preparations for the long journey were made, and I was waiting for the expected monthly mail to arrive. This came and I was to start early the next morning. During a walk on the wall with St. John to take a last look at the beautiful bronze astronomical instruments of the Jesuit fathers of the sixteenth century, I had severe pains. After dinner Dr. Lockhart came in and sat beside me.

"You're not well," he said. Then raising the hair from my forehead:

"You won't start to-morrow; you have smallpox."

Mrs. Burlingame had given me a small building with two rooms, on the great court of the legation. Here I lay for weeks between life and death. During two weeks I had a peculiar delirium, peculiar in that I would have intervals of consciousness in which, for a few minutes, I remembered clearly the visions I had seen. Of those awful visions some are still distinct in memory. In one I was fleeing around the world before a band of villains. Once I overheard their talk, and learned that they wanted to kill me by running long needles through my ears into the brain. Then I was to be exhibited in Madame Tussaud's wax collection of great criminals. Just as the awful climax in these visions approached, I knew that if I could only open an eye far enough to see the top of my bedpost I would be all right.

In the wildest of all these visions—the one that haunted me—I was on a horse and chased by mounted Indians along

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